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THE WATER HYACINTH AS A SOURCE OF POTASH.

By F. W. F. Day.

In the *Agricultural Journal of India* (July, 1917), appeared a paper by R. S. Finlow and K. McLean on the value of the water hyacinth (*Eichornia crassipes*) as a fertilizer. In view of the results obtained in India it was intended to investigate the value of the plant in this country, in connection with the destruction of large quantities of this pest under the Water Hyacinth Enactment, Federated Malay States, but owing to pressure of other work it was not possible to proceed with this investigation at the time.

When subsequently, the attention of the Department of Agriculture was directed by the Chief Secretary, Federated Malay States, to an abstracted article in the *Indian Trade Journal*, which gave a summary of the original paper, various samples of the plant were collected from different parts of the country and submitted to investigation with particular reference to the potash content of the material. The most important result of this work has been to show that the variable composition of the plant in respect to potash content, as indicated in the figures in the Indian publication, is due to the different amounts of ash contained in the plant and that this variability is due to the presence of fine particles of silt, etc., incorporated in the roots or adhering to the plant and therefore to some extent adventitious. In all cases in which the ash content is high, the potash content of the ash is low and *vice versa*.

Ten samples of the freshly gathered and partly dried plants were received from the Assistant Agricultural Inspector, Perak North. Two of the plants (Nos. 1 and 2) were collected at Taiping and the rest were taken by the Sub-Inspector of Coconuts, Krian, from various places around Bagan Serai.

Methods of Analysis.

The plants were sun-dried and then cut up with scissors in order to obtain a fair sample. There were three well-defined components of the cut up plants—*viz.*, stalk and leaf masses of a yellow to brown colour, roots and rootlets of a much darker hue and a dark coloured, heavy dust. The final samples selected for analyses 1 to 10 contained as far as was possible a representative quantity of each component. Samples Nos. 7*a*, 7*b* and 8*b* were specially selected as described later. The amount of dust being the most difficult component to distribute fairly was the subject of a special determination. The dried sample was rubbed over a sieve

with 3 mm. holes and the dust so shaken out was passed through another sieve with 1 mm. holes. The dust passing both sieves was ignited and weighed and appears in the table as "Sand, etc., entangled in the plant."

With a view to ascertaining whether potash salts could be easily washed out of the sun-dried plant, hot water extracts were made; the extracts of each individual plant, being analysed for chlorine and then the whole bulked, boiled down and ignited. In this way it was shown that much valuable saline matter was already liberated as a result of the partial decomposition attendant on drying. The moisture was obtained by drying at 100°C. to constant weight; the organic matter is loss on ignition and is additional to the loss at 100°C. The ash was twice extracted with water and re-ignited in order to effect complete combustion. Thus the total ash, organic matter and moisture add up to 100, while the ash is further graded into three fractions of different degrees of solubility; the sum of these three equalling the total ash.

The potash was extracted with 20 c.c. of warm half-normal hydrochloric acid as it was thought that in this way the whole of the potash would be recovered. The results so obtained appear in the column headed "Water and weak acid soluble potash." A further extraction with strong acid, however, dissolved considerably more potash in many cases, thus making it necessary to have a column for "Total potash." Phosphates were estimated in strong acid extract only as it was not expected that any great proportion of phosphate would dissolve in water. For convenience of reference, percentages are also expressed on the ash itself (*see* Table II).

Discussion of the Analytical Results.

It is clear that while there is some variation in the sand, etc., entangled in the plant the amount does not average more than 3 per cent. Even if as much as another 5 per cent. be allowed for the larger particles—gravel, etc., thus making 8 per cent. of adventitious matter, there yet remains the fact that exceptionally high figures for ash are met with in this plant. Twenty per cent. is seldom exceeded in other plants. The variation in the ash figures is largely due to accidents of growth and environment, as the water hyacinth is specially apt to collect particles of sand and silt that are from time to time swept past it by the water in which it grows.

The approximate ash contents of the following miscellaneous collection of plants, etc., are collected here for purposes of comparison:

Oak (timber), 1.3 per cent.; beech, 0.6 per cent.; elm, 2.5 per cent.; ash, 1.2 per cent.

Para rubber tree (trunk) 1.6 per cent., (branches and leaves) 6.2 per cent., (bark) 5.2 per cent., (seeds) kernels 1.8 per cent., shells 0.7 per cent.

Grasses: Guinea grass, lalang, Australian blue couch, about 7 per cent.; tea (dried leaf), 5 to 6 per cent.; tobacco, 12 to 16 per cent.; coffee beans, 3 to 4 per cent.; cocoa nibs, 2 to 3 per cent.

Returning now to a consideration of Table I, it will be seen that the lowest ashes are obtained from the samples mostly composed of stalks. More important still is the fact that the whole of the

potash of the stalky samples, Nos. 4 and 8, is present in an easily soluble form, probably as chloride—an all important consideration from the point of view of potash recovery on a commercial scale though of less importance for manuring purposes. Now if this soluble potash be expressed as chloride (instead of oxide as is usual) the percentages so obtained are almost identical with the percentages of readily soluble ash, which confirms the suggestion that the bulk of the potassium is present as chloride.

The alkalinity of the ash, a measure of the alkali carbonates present, while actually very small is also relatively very high in Nos. 4 and 8. Carbonate in ash denotes that the alkali existed in the plant as oxalate, succinate and other organic salts. The absolute amount of carbonate, however, is small, 3 to 4 per cent. of the total ash in Nos. 4 and 8 and less than $\frac{1}{2}$ per cent. in the other samples.

In other samples, No. 3 for example, a considerable proportion of the potash is insoluble in water and is no doubt derived from felspathic particles which help to make up the 30 per cent. or so of ash contained in these samples.

The ashes of Nos. 4 and 8 are 11 per cent. and 15 per cent., respectively, which would seem to suggest that the normal ash percentage of the stalk of the water hyacinth was of about this value; higher figures representing contamination with roots and their adherent and entangled mineral particles. To settle this point the three special analyses were undertaken. Samples of the stalks and leaves of No. 7 (rooty, stunted plants) and No. 8 (large, well-grown, stalky plants) and also a sample of the roots of No. 7 were separately dealt with and are referred to as Nos. 7*b*, 8*b* and 7*a*, respectively.

In the process of separation, dust particles which largely constitute the adventitious sand, etc., were left behind thus giving a higher soluble ash. These last three analyses (*see* Table I) establish the fact that 10 to 15 per cent. may be taken as the normal range of the ash of the sun-dried plant when freed from roots and extraneous matter. More than three quarters of this ash is always readily soluble in water and something between a fifth and a fourth of its weight represents potash (K_2O) or more than a third by weight represents potassium chloride (KCl). Nearly all the phosphate is present in soluble form. This percentage of potash in ash is by no means high as the figures enumerated below will show. Few uncultivated plants yield large *amounts* of ash rich in potash.

The ashes of tobacco, tea, bamboo shoots (a recognized source of potash in Burma) and rubber seeds yield from 30 to 40 per cent. of potash. Coffee beans are still more variable, say from 15 to 40 per cent. The ash of Hevea latex contains about 40 per cent.; bark, 10 per cent.; banana ash from 40 to 50 per cent. and the ash of coconut husks from smoke-houses about 15 to 20 per cent.; this last should prove a very useful source of potash. The ash of the beech yields 25 per cent.; of the oak, 14 per cent.; of the elm, 15 per cent. and the ash 6 per cent. of potash. These last trees vary from a tenth to four-tenths per cent. of potash reckoned on the wood, yet they at one time supplied the world's potash requirements.

Utilisation of the Plants.

The value of the green plant as a nitrogenous, phosphatic and potassic manure is apparent—its use as such resolves itself into a question of transport, as 95 per cent. consists of water*. The ash is particularly useful for its potash content, though so far as the Federated Malay States is concerned, potash is the one essential soil constituent which is naturally abundant.

As a source of potash, however, the ash, especially that of the stalks, is very rich and if an ample supply of plants can be secured and the growth properly controlled so as to keep water-ways, etc., clear of obstruction, there can be no reason why the manufacture of potash salts should not become an important and profitable industry. The preparation of commercially pure, soluble salts of potassium merely requires burning, lixiviation and fractional crystallisation—three simple operations particularly adapted to the climatic conditions of this country.

Recovery of Potash Salts.

For the recovery of potash salts on a commercial scale an outline of the process would be as follows: The plants should be cut, or if pulled the roots should be cut off. Drying should be carried out quickly and in such a manner as to facilitate draining. The well dried stalks should be burned in pits dug in the earth in places sheltered from the wind. The collected ash, about 12 per cent. of the dried plant, is spread on a stone or cement floor and sprinkled with water and worked through till it is evenly damped. Experience will show whether a little lime should be mixed with the ash, as probably this would keep the phosphate in the residue. The damp ash is placed in a cask provided with a false bottom covered with dried grass or leaves and water (preferably hot) is poured over it. After standing some time in the sun the liquor formed is drawn off from a plug hole at the bottom. If it is about 32° Twaddell (sp. gr. 1.16) it can be evaporated down at once, the weaker liquors and washings being used for lixiviating fresh ash. The residue, which will still contain some potash, is a good manure and, if the phosphate remains, is practically as good for local use as the original ash. It should be possible in this country to do much of the evaporation by exposure to sun heat in open iron trays. This process is suited to work on a small scale in scattered places while the refining, if needed, could be done in central establishments.

Conclusion.

The actual composition of the ash has not been investigated very closely as the conditions of a complete burn on a small scale are such as to produce an ash somewhat different to that likely to be obtained in practice in pit burning. However, the ash consists essentially of potash 25 per cent. (as potassium chloride 40 per cent.), soda, magnesia, chlorides, sulphates and carbonates in varying proportions. To ascertain the exact composition of the final liquor and so to determine the best form in which to market the potassium it would be necessary to conduct a few experimental burns on a practical scale. This Department proposes to undertake such experiments at the first opportunity. In this way some estimate may be made of the practical possibilities of the process and any

* *Agricultural Journal of India*, July, 1917.

unforeseen difficulties brought to light. In view of the fact that substantially speaking the whole of the world's supply of potash is locked up in Central Europe and that many countries are actually recovering potash from felspar by expensive chemical processes, it seems that the prospect of potash from water hyacinth should be particularly attractive from the commercial point of view. Especially is this so when one considers that the plant is a local weed, the quick growth of which has threatened the water-ways of the country to an extent requiring legislation, and that 3 per cent. of the dried plant is potash (or 5 per cent. is potassium chloride).

Analysis of Water Hyacinths.

TABLE I.

Reference No.	On the Sun-dried Plant.												
	Moisture.	Organic Matter.	Sand, etc., entangled in plant.	Water soluble Ash.	Water insoluble but acid soluble Ash.	Insoluble Ash.	Total Ash.	Potash.				Phosphorus as P_2O_5.	
								Water soluble as K_2O.	Water and weak acid soluble, calculated as		Total as K_2O.	Water soluble.	Total.
									K_2O.	KCl.			
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1	9.8	52.4	4.4	0.7	10.3	26.8	37.8	...	0.85	1.4	2.00	...	0.14
2	9.2	66.2	4.8	1.4	12.7	10.5	24.6	...	1.89	2.7	2.58	...	0.53
3	13.2	50.9	2.0	2.7	15.4	17.8	35.9	...	1.66	2.6	3.71	...	0.54
4	12.5	76.8	0.9	4.3	5.7	0.7	10.7	...	2.60	4.2	2.60	...	0.76
5	11.7	67.4	3.9	4.7	5.5	10.7	20.9	...	2.66	4.2	3.08	...	0.49
6	10.7	53.6	3.0	7.0	11.0	17.7	35.7	...	4.18	6.7	5.00	...	0.65
7	11.2	59.5	1.6	7.6	8.1	13.6	29.3	...	4.52	7.2	5.50	...	0.63
8	13.0	71.8	1.8	6.8	6.1	2.3	15.2	...	3.91	6.2	3.95	...	0.91
9	11.2	53.6	2.5	5.2	8.7	21.3	35.2	...	3.42	5.5	4.36	...	0.51
10	11.4	57.8	1.2	5.6	12.4	12.8	30.8	...	3.64	5.8	...	...	0.99
Mean	11.4	61.0	2.6	4.6	9.6	13.4	27.6	...	2.93	4.7	3.64	...	0.61
										Water soluble as KCl.			
7*a*	...	...	...	15.3	7.4	10.6	33.3	1.1	...	1.8	1.3	0.7	0.8
7*b*	...	...	...	9.7	3.1	0.7	13.5	2.9	...	4.8	3.0	0.7	0.8
8*b*	...	...	...	9.3	1.2	Nil	10.5	2.7	...	4.3	2.7	0.3	0.3

NOTES.—

No. 1. Small and leafy; somewhat broken up, growing in swamp. Ash—light grey.

No. 2. Similar generally to No. 1 but from mine hole.

No. 3. Fine appearance, many blackish hairy rootlets. Darker than other samples. Ash—dark grey *.

No. 4. Large brownish stalky appearance.

No. 5. Resembled mixture of Nos. 3 and 4; well developed roots. Ash—red.

* Ash retained persistently the original structure of the plant; this was probably due to high percentages of silica and sodium chloride.

Analysis of Water Hyacinths—(cont.)

TABLE II.

Reference No.	On the Ash.											
	Chlorides extracted with hot water calculated as		Sulphate as SO_3.	Solubility.				Potash.			Phosphorus as P_2O_5.	
				Water soluble.	Water insoluble, dilute acid soluble.	Dilute acid insoluble, strong acid soluble.	Strong acid insoluble.	Water soluble.	Water and weak acid soluble, calculated as	Total.	Water soluble.	Total.
	Cl.	KCl.						K_2O.	K_2O.	K_2O.		
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1	5.3	11.5	...	1.9	7.4	19.7	71.0	...	2.2	5.3	...	0.5
2	7.2	16.0	...	5.6	15.3	37.1	42.0	...	7.7	10.5	...	2.2
3	10.3	22.9	...	8.5	6.1	36.2	49.4	...	4.6	10.3	...	1.5
4	16.8	37.3	...	40.2	29.2	24.2	6.4	...	25.1	25.1	...	7.4
5	7.6	16.9	...	22.4	14.1	15.6	47.9	...	12.7	14.7	...	2.4
6	7.8	17.3	...	19.4	11.4	19.7	49.5	...	11.7	14.0	...	1.8
7	9.2	20.4	...	25.9	13.1	14.2	46.8	...	15.4	18.8	...	2.2
8	12.5	27.8	...	44.6	17.3	22.9	15.3	...	25.8	26.0	...	6.0
9	6.5	14.5	...	14.6	7.3	17.5	60.6	...	9.7	12.9	...	1.4
10	9.7	21.6	...	18.4	10.8	29.5	41.5	...	11.8	...	...	3.2
Mean	8.7	19.3	13.0	20.1	13.2	23.7	43.0	...	12.7	15.3	...	2.8
						Dilute and strong acid sol.						
7*a*	...	...	...	46.0	...	22.4	31.6	3.2	...	3.9	2.0	2.2
7*b*	...	...	...	71.8	...	23.0	5.2	21.2	...	21.7	5.0	5.6
8*b*	...	...	...	88.5	...	11.3	0.2	25.7	...	25.8	2.7	2.9

NOTES.—(*cont.*)

No. 6. Smaller plants, fair mixture leaf and roots. No stalks.
No. 7. Fibrous stunted plants; well developed roots.
No. 8. Large stalky plants, lightish colour. Strong roots. Ash—very red.
No. 9. Mostly black fibrous roots and leaf; small plants.
No. 10. Rather larger plants than No. 9.
No. 7*a*. The roots of No. 7 separated from dust and all stalk and leafy matter. Much reddish ash.
No. 7*b*. The stalks and leafy matter of No. 7 similarly separated. Ash—grey.
No. 8*b*. The stalks and leafy matter of No. 8 as above. Reddish ash.

VULCANIZATION RESEARCHES.

By B. J. Eaton.

THE results described below are a continuation of those published in the *Agricultural Bulletin, F.M.S.*, Vol. VI, No. 3, December, 1917, and are derived from experiments carried out during the last quarter of 1917.

Excess of Acetic Acid in the Preparation of "Slab" Rubber.

Although it had been found previously that an excess of acetic acid used as a coagulant had very little effect in retarding the vulcanization of crêpe rubber, even when the amount employed was five times the minimum essential for coagulation, no experiments had been carried out on slab. These have now been carried out and show that the retardation caused by an excess of acetic acid in the case of slab is comparable with the results obtained with crêpe.

Effect of Sodium Bisulphite on "Slab" Rubber.

It has been proved by us previously that sodium bisulphite slightly retards the rate of cure of crêpe. Similar experiments now completed on slab rubber give similar results. It may be pointed out, however, that the use of sodium bisulphite in the preparation of slab is in order to obtain a pale coloured rapidly curing rubber, superior in tensile properties to the ordinary pale crêpe. This cannot, however, be effected by allowing the coagulum to mature in the open, since darkening occurs, probably on account of the large amount of oxidizable substances and greater amount of oxidizing enzyme remaining in the slabs. Whether slab containing sodium bisulphite can be matured by keeping it in closed vessels, in order to preserve a pale colour, remains to be investigated.

Effect of Drying "Slab" Rubber under Different Conditions.

Since the researches carried out by the writer have shown the presence of vulcanization accelerators to be actually present in latex and retained in the raw rubber under certain conditions of preparation, in addition to those formed by the decomposition of the proteins in the maturation of slab and rolled up wet sheet, etc., it was considered advisable to ascertain whether these accelerators were removed to any extent when the matured slab is subsequently crêped and dried. Experiments were therefore carried out in which the matured slab was cut up into thin worms and air-dried and subsequently mixed direct with sulphur for vulcanization. Comparative samples of matured slab were converted to crêpe and dried.

Little or no difference was obtained between the rate of cure of the slab cut into worms and dried and that converted to crêpe, which shows that little or none of the vulcanization accelerators are removed by the normal washing and crêpeing of the matured slab.

As a matter of fact the crêped slab in each series of the experiment vulcanized slightly more rapidly than the "wormed" slab. It was observed, however, that a certain development of "spot"

disease occurred invariably in the "wormed" slab (after worming) due to the exposure to the air combined with the slow drying of the worms and this may have been responsible for the slightly retarded cure, since the writer has shown previously that the organisms causing "spot" disease retard the rate of cure of a fast curing rubber.

Further experiments are required in which the "wormed" slab is dried artificially in order to obviate this "spot" disease.

Effect of Alum.

A number of samples of sheet from small holdings have been examined recently, some of which were known to have been prepared by coagulation of the latex with alum.

The rates of cure of sixteen specimens, which are found on the market, varied from $1\frac{3}{4}$ to $4\frac{1}{2}$ hours, which gives a very good idea of the lack of uniformity of rubber from such estates, even at the present time.

These results confirm the previously expressed opinions of the writer as to the detrimental effect of coagulation by means of alum.

THE BETEL-LEAF OR SIRIH.

(*Piper Betle*).

By J. N. Milsum.

THE habit of chewing betel-leaf has been practised by the natives of many countries in the East from remote times. The leaves with a small quantity of lime and a few slices of areca-nut, form a common masticatory, used by all classes of natives. Apart from this use, the leaves are valued especially in India, for various medicinal purposes. *Piper Betle* is a perennial dicœcious creeper, found in a wild state in Java and probably native of that country. It is of scandent habit bearing large cordate shining leaves. The flowers are in the form of a catkin and fruit is seldom seen in Malaya. Sirih has been cultivated in this country for a number of years. Ridley, writing in 1896* says, "It is much cultivated for local consumption in Singapore and other parts of the Malay Peninsula." During the last few years, an increase in the cultivation of this plant has been evident and at the present time the production of sirih leaves is receiving considerable attention from native cultivators, especially Mohammedan Indians. The increased demand of sirih appears to be explained as follows: Previously the Malay variety was grown and though in demand by Malays, was held in less favour by Tamils and Indians generally. This variety has now been almost entirely superseded by varieties raised from Indian stock. All nationalities now show a preference for the Indian kinds and the custom has considerably increased in popularity. The retail price of sirih has increased by almost 100 per cent. during the last few years.

Cultivation.

The successful cultivation of betel-leaf is only brought about under suitable conditions and by constant attention on the part of the grower. The plant requires a sheltered position, a uniform abundance of moisture and soil rich in humus and organic matter. The betel-leaf is not usually grown by the consumer, sometimes Tamil coolies grow a few plants in their gardens but as a general rule the plants are cultivated by native experts who devote the whole of their time to the production of the leaves. In India specially constructed houses are often employed for the growing of sirih, in other districts the sirih garden is enclosed by a tall thick hedge. It is all important that the plants be afforded a constant temperature, free from dry scorching winds. As previously stated the cultivation of sirih in this country is almost entirely in the hands of Mohammedan Indians. These men are experienced growers and show a high degree of skill in the growing of this crop.

It is usual for the sirih gardens to be situated in the vicinity of towns or estates employing a large labour force of Indians. These gardens are considered by some to be dangerous to health on account of the harbour they afford to mosquitoes; it seems possible, where

* *Agricultural Bulletin, Malay Peninsula*, No. 5, p. 121.

irrigation is resorted to, that the water-channels may provide likely places for the mosquitoes to breed in. The writer heard of an instance where such a garden was closed down owing to this reason.

Soil and Choice of Site.

A black, friable clay loam containing a fair proportion of sand is required. This is subsequently enriched by frequent applications of pond-mud and well-rotted cow-dung. A moist sheltered situation is necessary and an ideal position is frequently found in a ravine with a slight fall to permit of irrigation.

Preparation of the Land.

The land selected is thoroughly cleared of all *blukar* and weeds and fenced round with a hedge, usually composed of the "dadap" (*Erythrina indica*), "horse-radish tree" (*Moringa pterygosperma*) and *Euphorbia Tirucalli*. A thick hedge is necessary not only to keep out cattle but to promote as close an atmosphere as possible. Bananas are not infrequently grown around the garden. The preparation of the land is an intricate and costly operation. Raised beds are made divided by deep water-channels, the length of the bed varies but is usually about 50 feet long and 4 feet wide. The surface of the beds is about 4 feet above the bottom of the channels, the latter are about 3 feet wide. The channelling is ingeniously constructed to give a gradual fall from the highest part of the garden where a water-raising apparatus is constructed. In the damper parts of the garden the deep channels are dispensed with and shallow surface drains are made. In dry weather, water is raised from the main water-channels by means of buckets and poured over the land. The surface of the beds having been well pulverized a copious application of well-rotted cow manure is placed on the land and exposed to the action of the weather, for two or three weeks. Seeds of *Sesbania grandiflora* (Tamil, *ourethemaram*) are next sown in two rows about two feet apart, the seeds being placed about a foot apart in the rows. In a month or so the *Sesbania* are about one foot high and afford slight shade, the land is then ready for the reception of the sirih cuttings.

Planting.

The beds having been given a thorough watering, cuttings are taken from plants two years old and trimmed into lengths of about 18 inches, each with five to six joints; these are buried in the earth about two joints deep. The distance of planting is in two rows about 3 feet apart, each row on the outer side of the young *Sesbania* trees. The cuttings are placed about 1 foot apart in the rows. Planting is usually done in dull weather and the cuttings are shaded with foliage cut from the jungle. After planting, the beds are well watered for ten days or so when the cuttings begin to strike roots and show signs of growth.

Care of the Beds.

As the plants increase in length supports become necessary. Poles about 16 feet long and $1\frac{1}{2}$ inches in diameter are firmly placed in the ground in arching fashion over the water-channel or path. It is important to allow the plants plenty of space to develop their leaves.

A stake is placed against each plant and the stem attached by twine. The plants soon throw out aerial roots and climb up the supports. It is highly important to keep the poles in good order and if any show signs of becoming rotten they must be replaced by new ones. The *Sesbania* trees grow rapidly and in one and a half years attain a height of about 25 feet, they are then topped to produce lateral branches and thus afford more shade for the sirih plants below. When the sirih plants become well established they require plenty of water and irrigation is resorted to. Water is raised from a well by means of a bucket suspended from a pole swinging over supports. The work is lightened by attaching a weight to the opposite end of the pole. The cultivators are adept in the management of the water raised and by systems of channelling, drains and outlets the whole area is irrigated before the water leaves the garden.

When the vines have attained a height of 15 feet they are bent down and a portion is rested on the ground and covered with a little earth, while the growing end is turned upwards and trained to another support. This operation is repeated when necessary, usually about three times a year. The leaves are removed from the portion of the stem below the soil.

Every four months a fresh supply of rotten cow manure is placed over the surface of the bed. A bed, 50 feet long, receives 25 baskets in addition to the scrapings from the bottom of the channels.

Plucking the Leaves.

Within five months from planting the first plucking is made. The leaves on the main stem are not removed, these are left on the plant to manufacture the necessary plant food. The leaves are plucked in the early morning and picked from the plant by an ingenious contrivance, a piece of tin fitted over each thumb with a sharp edge and a band to make it secure. During the first pluckings a few marketable leaves only are obtained but the quantity available increases with the age of the plants until the garden shows signs of exhaustion. It has not been possible to gather information as to when it ceases to be profitable to continue cultivating the plant. By bending the plants down as previously directed it would appear that the production of leaves would not materially decrease for five or six years, when it would probably be necessary either thoroughly to overhaul the garden or choose a fresh site.

The yield of marketable leaves varies with the weather as does also the price obtained. During dry weather fewer leaves are produced than during the rainy season, and more than double the prices obtained for the produce.

A local grower informed the writer that mature plants give from 30 to 50 leaves at each plucking. This appears to be a high yield but his plants were under good cultivation and apparently at a highly productive stage. Three pluckings are made each month in rainy weather and two during the dry.

The following measures are used by the local growers in connection with this crop:

100 leaves	... ...	1 "kavalee."
25 "kavalees"	... ...	1 "muttai."

The grower may expect to get 15 cents a "kavalee" during dry weather and 6 cents only during the rains, when the leaves are plentiful. At present about 12 cents a "kavalee" is obtainable. The betel-leaves are retailed in the local "kedais" at varying prices but 5 leaves for a cent seems to be about the present average price. Two varieties of betel-leaves are grown here by the Mohammedan Indians "Sakara-kodee-vettilee" and "Vella-kodee-vettilee" the former variety being most frequently grown. The young leaves of *Sesbania* are also sold and realize a price of about 1 cent for 15 leaves. The Tamil coolies use these leaves in soup and also eat them fried.

The growing of betel-leaf requires a high standard of cultivation but would appear to be a very remunerative undertaking.

NOTES ON THE PRODUCTION OF DRY-LAND RICE.

By G. E. Coombs.

IT is probably not generally known that of the present total area of 140,000 acres of land devoted to the production of padi in the Federated Malay States, about 15,000 acres are under "dry-padi," the distribution of the various areas of the latter being as follows:

State.	Area under	
	(1) Ladang.	(2) Tenggala.
Selangor	4,000 acres	—
Negri Sembilan	—	—
Perak	6,000 ,,	—
Pahang	1,000 ,,	4,000 acres

Definitions of the Terms "Dry-Padi" and "Wet-Padi".

The production of the two kinds of padi demands different sets of conditions. "Wet-padi" can only be produced where provision is made to ensure that the growing crop obtains at least a few inches of irrigated surface water during practically the whole length of its growing period. In the large area of about 52,000 acres in Krian, this demand of the crop is met in the supply provided by the irrigation scheme. In other parts of the country (and the total area of wet-padi land outside the irrigation area comprises 72,000 acres) the padi planter is dependent on the ofttimes precarious rainfall. Experience has taught him the most favourable times whereby he can ensure his planting seasons synchronizing with the periods when the rain water reaches the valleys. The nature of the water supply in the areas outside the irrigation scheme, through its variability in period and quantity, is responsible for the large amount of variation in the duration and quality of the crops, which it is possible to produce from locality to locality.

"Dry-padi" on the other hand may be produced under conditions more nearly approximating to those for the production of ordinary grain-crops in temperate climates. Its water requirements are satisfied by the diffused rains which occur throughout its growing period, and it can thrive under conditions of so small a water supply as would ordinarily spell complete ruin to the production of "wet-padi." The latter case is not, however, without exception and varieties are on record where a satisfactory crop may be obtained under either set of conditions. These facts for this country have not as yet been investigated.

Two Forms of Dry-Land Padi Cultivation.

"Dry-padi" is cultivated by the natives in this country by two methods known as:

(*a*) Ladang, tanah-tugal, huma-,or hill-cultivation.

(*b*) Tenggala-or plough-cultivation.

(*a*) Ladang Cultivation.

This primitive and easy method of exploiting virgin soil consists in its simplest and most wasteful form, of the utilisation of the rich newly burnt jungle land to the production of one or two (very rarely three) annual crops of cereals.

LAND.

The land which is chosen generally consists of the sides of low hills carrying virgin forests. In some instances, erstwhile virgin forest land now carrying secondary jungle, grown since a previous cropping, is utilized. The *Sakais* utilise the more precipitous hill-slopes of higher elevations. The land is first cleared of its small growth after which the large trees are felled, as is the case with land destined for permanent cultivation. The burning-off is generally a two-fold operation the smaller branches and trunks being piled in heaps immediately after the first burn and subsequently ignited, no attempt being made to effect the destruction of the larger trunks. Land thus cleared is prodigiously rich, and is further effectively sterilized, which *latter* fact probably increases its productivity.

SEEDING RATE AND METHOD OF SOWING.

As a rule no attempt whatever is made to cultivate the soil. The burning is timed to be over just before the rains, so that the land may receive a thorough soaking before the seed is sown. Sowing time thus becomes different for different localities.

The actual method of seed sowing as the Malay term "Tugal" implies, consists of sowing several (3—8) seeds in shallow holes made by a stake with a rounded end, the holes being subsequently covered in by the foot. The holes are generally spaced about 1 foot apart, the seeding rate per acre being about 5—6 gantangs of padi.

CULTURE.

As practised by the native and particularly by the *Sakai* the work done is an absolute minimum. To the latter, culture, even to the extent of weeding is almost unknown, but in a few places, a first, and sometimes even a second weeding is given by other native cultivators. Many ladang cultivations are almost intensive in their nature, being sown with a quicker growing maize or "menjelai" crop in addition to rice. Menjelai (*Coix* sp.), is a cereal which is grown to replace pulut rice. Sown with the padi, it runs to a long stem about 5 feet high, bearing a crown of leaves which produce practically no shade effect on the surrounding padi.

VARIETIES.

The varieties which are generally grown are what are known as medium varieties requiring about a 5—6 months period from sowing until they reach maturity.

Definite information on the relative values of the varieties is not available.

PESTS.

These are of no small importance particularly where the patches of ladang cultivation are small. For any locality the ripening crop is the centre of attraction for innumerable birds, and even with the

manifold ingenious bird-scaring devices which the native erects against their incursions, the crop is often very seriously diminished by their depredations.

"Padi-Borer" the small caterpillar which burrows into the straw and eats away the connection between the flowering shoots and the main stem, is less destructive here than in the case of "wet-padi," particularly where the latter has been weakened by an excess of water in the earlier stages of its growth.

Rats are invariably a source of loss and pig, where the clearing is near jungle, demand considerable vigilance but the loss caused by the former can largely be reduced by weeding.

It will, however, be evident that the loss of crop will be most effectively diminished by planting in large areas, and planting in such a way, and with such varieties, as will result in uniform maturation in any particular locality.

HARVEST OPERATIONS.

Many of the ladang clearings show at harvest time a very patchy maturity. This is largely due to the fact that but little attempt is made to keep up the quality of the seed, and because of the race and struggle which the padi has to undergo against weed-growth and pests. The crop is invariably cut with the *tuai* (a small native harvesting knife,) the ears being separately cut and tied with rice straw into bundles, whence the grain is separated by being trodden out under foot.

TREATMENT OF THE HARVESTED GRAIN.

The conversion of the harvested padi into rice is performed as necessity arises. After the padi grain has been trodden out, it is winnowed by sifting and allowing the wind to carry away the light refuse, the grains separated by the operation being subsequently further cleaned by one of the many methods of tossing on shallow-trays at which the native is so adept. In most cases the whole of the harvested padi is so treated immediately after harvest, and the sun-dried grain is stored in round tubs.

Conversion into rice is performed by pounding the dried grain by the "lesong." It is an arduous operation, consisting of splitting the husk by concussions made with a rounded pole on a quantity of padi placed in a hollowed out log. In some instances, labour saving has been effected by the utilisation of a "lesong" adapted on the principle of a lever, but the method here is still very imperfect.

YIELDS.

These vary according to the conditions. The incidence of rains after the seed is sown has a most pronounced effect. Under the best of conditions, that is, where virgin soil is used and where care is taken to minimize the effects of birds and rats (no effective measures can be taken against padi-borer) a crop of 250—350 gantangs of padi per acre may be obtained from a variety of 5—6 months duration. The return is thus about seventy-fold. In actual practice, however, this is hardly ever obtained. The following figures (Tables A and B) were collected from sample plots in the

mukim of Ulu Bernam in 1915 and 1916 from virgin jungle land, and such land under its second cropping respectively:

TABLE A.

Variety.	Dates of		Size of sample plot.	Yield of plot.	Calculated yield per acre.
	Sowing.	Harvest.			
			Acre.	Gantgs.	Gantgs.
1. Nias	8/14	1/15	1/10	27	270
2. Alin	,,	,,	,,	25	250
3. Santap puteh ...	,,	,,	,,	26	260

TABLE B.

1. Nias	9/15	2/16	1/10	21	210
2. Alin	,,	,,	,,	19	190
3. Santap puteh ...	,,	,,	,,	18	180

These figures cannot be considered as more than approximations.

Native informants generally give the following figures for the crops obtainable from virgin land and from land removed one and two years from its virginity respectively:

(1) Virgin land up to 350 gantangs per acre.

(2) 2nd year ladang up to 250 gantangs per acre.

(3) 3rd year ladang up to 150 gantangs per acre.

The very rapid decline is a point which requires proof under controlled conditions. It may be presumed and the presumption includes a margin of safety, that the land under young rubber in inland districts up to the time when the trees are two years old, will, in so far as soil alone is concerned, at least present the possibilities of (2) and (3) above.

With coconut land the matter is somewhat different, and for types of land which have been chosen for this culture, it should be possible to obtain crops approximating closely to the possibilities which are met with in newly cleared virgin land.

(*b*) TENGGALA CULTIVATION.

This method of cultivation which has great possibilities, is practised more particularly by the natives in the lower reaches of the Pahang River. The following figures show the approximate extent and location of the areas so devoted.

Lipis	2,500 acres.
Temerloh	100 ,,
Pekan	1,200 ,,

LAND.

The land which it is utilised for this particular form of cultivation is the low alluvial tract which occurs along the banks of the river. There is little doubt, however, that the method could be profitably extended to any of the flat lands with a high water-table, or if need be to almost any type of land. In the particular case of Pahang, there occur large stretches of alluvium where in any season, there may be seen stretches of poor grass-land put under the plough.

This grass land is "tenggala land" which has been allowed to recover from previous cropping by a three- or four-year system of fallow. The land just before it comes under the plough, supports a sparse *blukar* growth and a poor covering of very poor fodder grass. In the preparation of the land for a crop of padi the *blukar*, never very heavy, is cut, and the roots of the shrubs excavated. The land is subjected to a triple ploughing by means of a primitive shallow cutting native plough, drawn by buffaloes. In the case of opening up the grass land there is probably a distinct virtue in shallow ploughing, as has been shown recently in England, but the instruments used for the conversion of this fallow land are pathetically imperfect, but the favourable results obtained even by these disclose what great possibilities lie in the results of improvement therein.

SEEDING RATE.

Seed is sown broadcast at the rate of about 8 gantangs per acre. The seed is cross-ploughed or dragged in.

PLANTING TIME.

In the particular case of Pahang conditions are somewhat unique, the planting season being absolutely controlled by the incidence of flood water from the river, so that the dates for this district would not be of general guidance. The actual dates in Pahang are, sowing from mid-June to the mid-September with harvest from mid-January to mid-March. In general it may be stated that for tenggala-padi the sowing should be timed to get the rains as soon as the seed is in the ground, and thus for this cultivation as for wet padi, optimum periods in different parts of the country will vary.

CULTURE.

As at present practised by the natives of this country actual cultural operations cease the moment the seed is in the ground. No weeding is performed and the crops suffer accordingly. There is little doubt that improvements could be immediately effected on lines indicated below.

VARIETIES AND YIELDS.

The varieties which are used in tenggala culture are 6—7 months varieties. The results of experiments* in 1916, on land in the second year of cropping after a three-year fallow period, gave results as follows:

Variety.	Dates of		Size of plots.	Average yield per plot. (3 plots)	Yield per acre. (gantangs)
	Sowing.	Reaping.			
			Acre.		
1. Jambak bawang	8/16	5/17	1/40	7.5	300
2. Ekor kerbau	,,	,,	,,	7.5	300
3. Lebat chantek ...	,,	,,	,,	7.0	250
4. Bendang seri	,,	,,	,,	6.75	270
5. Lembut ungoo ...	,,	,,	,,	6.75	270
6. Lengok	,,	,,	,,	6.5	260

* Unpublished records of Pekan experiments by D. H. Grist and G. E. Coombs.

These figures may be taken as fair average ones for a favourable season, and it will be seen that they give an approximately equal return to that given by first-year cropping of ladang areas. Pests of similar nature and consequence to those mentioned concerning ladang-padi occur, and the grain is harvested and treated in a way similar to that for the latter crop.

The Question of Fallow.

As in ladang cultivation, subsequent immediate cropping results in a serious diminution of return, but in the case of tenggala-land this diminution is not so pronounced as in the case of ladang-land the former often producing a payable crop, *i.e.*, a crop not less than 150 gantangs per acre, for five years in succession. Such cases are, however, comparatively rare, a three-year cropping and a three-year fallow being the normal sequence, but in this form of cultivation it is safe to say that great possibilities of improvement exist. These possibilities, *e.g.*, the improvement of cultural operations by new and improved implements, the value of drilling as compared with broad-casting, the effects of weeding, the possibilities in rotation, the utilisation of inter-and-catch-crops of leguminous natures, etc., are now being investigated.

Considerations Regarding the Growth of Dry-padi on Estates.

The immediate purport of these notes is that they may be of guidance to estate managers in arriving at their decisions as to the best method of immediate production on their estates.

Economics.

It is impossible to hazard the range of results which may be obtained, conditions on different estates being of so variable a nature. Generalizations only can be made, and ultimate decisions must be based thereon.

In the case of the native cultivator, tenggala operations "pay" him when the crop reaches 150 gantangs per acre, but as with most operations on a small-holder's farm it is extremely difficult to analyse what this term actually implies. Ladang operations would pay for actual work expended, at a lower yield-return, but the ladang cultivator is a nomad, and is prepared to move his dwelling and seek sources new, long before the actual bare-paying margin is reached. As a recorded experiment carried out on an estate in this country the results obtained by Lanadron* in 1902 may be of assistance. Here, fields of little or no shade were selected, and the crop sown on ladang principles at the rate of $4\frac{1}{2}$ gantangs of seed per acre the resulting crop being 175—200 gantangs per acre of cleaned padi. No details as to cost or as to the extent of cultivation, weeding, etc., are given, but that the experiment was a success for this isolated estate at the particular time of its development is undoubted, since the report furnishes a very definite affirmative reply to the query as to whether the work had been worth while. Whatever response comes from estates regarding this matter, it is evident that the method employed to produce a temporary crop will be decided largely on considerations of benefit resulting from the cultivation of the land. It is perhaps unnecessary to discuss this matter. In the case of actual virgin land, ladang cultivation will

* *Straits Settlements Bulletin*, 1902.

invariably be the method adopted, but it will be realized, that the adoption of this method is a committal to put the land so opened up to permanent cultivation immediately the necessity for the production of a temporary crop no longer exists. This for any particular estate may be a matter of some difficulty.

Land in general may roughly be divided into the coastal type with high water-table and its generally deep accumulation of humus, and inland soils which vary very widely in nature. Soils of the former nature will undoubtedly be the more amenable to catch-crop production.

It may in general be assumed that from the point of view of their abilities to carry catch-crops, areas carrying coconuts up to three years of age and rubber up to two years of age will be approximately equal, and that padi could be planted thereon between the rows of palms and trees with no prejudicial effect to either of the crops. On this basis the following figures might reasonably be expected to portray the possible yields under ladang operations,- coastal-lands up to 250 gantangs per acre, other lands up to 200 gantangs per acre. It must, however, be realized that even with ladang operations considerable vigilance is necessary to ensure against an incursion of lalang, unless the land be absolutely clean from the commencement and it is pertinent to suggest that far greater benefit will result to the immediate and subsequent crops the more cultivation be given.

On this basis there seems little doubt therefore that tenggala operations will be the more satisfactory, except for very porous soils and soils whose surface layers are very rich in humus and have a high water-table. Even here, however, a certain amount of cultivation will be required.

The plan which it is believed will meet most cases is that the land be put under the plough, imperfect though the native instrument be and that the seed be sown in drills thus facilitating weeding and harvest.

Analysis of Yield Figures.

Taking the resulting crop as being approximately 250 gantangs of padi per acre, the cooly index is arrived at as follows :

> 250 gantangs padi is equal to about 125 gantangs of rice. This at 6 gantangs per month per cooly will provide sustenance for a cooly for 21 months, *i.e.*, $\frac{1}{2}$ an acre of land will suffice a cooly for nearly a year.

Co-operative Production.

There is everything to be gained by an active co-operation between contiguous estates. Thus where planting time on such estates is approximately the same, harvest time for the same varieties of grain will be approximate. The effect of the incidence of pests will thus be decreased by this consideration alone. Where contiguous estates can devote contiguous areas to the crop similar decrease of pest depredation will result. Further there may be a very distinct advantage in co-operating in the obtaining of cultural implements and other labour saving devices, *e.g.*, hullers and winnowers. Many other points for co-operation occur which it is unnecessary to indicate.

SUMMARY OF LOCUST WORK FOR THE FIRST QUARTER, 1918.

By F. W. South.

NO locusts were found during the quarter in the Negri Sembilan or in Malacca and the Special Assistant is of the opinion that the work can be considered as concluded, so far as these two States are concerned.

During January and February a swarm of locusts was reported on three different occasions as having been seen in the Muar district and appears to have been flying northwards. Towards the end of February it was believed to have entered Malacca over the Sungei Mati border, but a careful search failed to find it. During March two more reports of the presence of a small swarm were received from the Mandor in the Muar district and on one occasion evidence of the previous presence of a small swarm was found, but the swarm itself disappeared. It seems probable that only one swarm is present, that it moved northward until March and then returned southward again. It appears to have been steadily decreasing in size and is probably dying out. The Special Assistant does not think that any further trouble need be anticipated anywhere.

It is considered safer to retain the services of the Special Assistant and two or three men for the present in case the wetter weather may have encouraged this swarm to lay eggs. If no hoppers are found or reported anywhere before the end of April, Mr. Lyford's services can be terminated and after that date at most only one conductor will be retained to watch the Muar and Batu Pahat districts for one or two months as a safeguard against any swarm that may have bred out in some remote place without discovery.

Arrangements are being made to collect all the apparatus remaining in Johore and Malacca, and to store or dispose of it as may be required by the respective Governments.

DEPARTMENTAL NOTE.

Mr. B. J. Eaton, Agricultural Chemist, Department of Agriculture, F.M.S., arrived at Kuala Lumpur, on return from privilege leave and resumed his duties on 10th May, 1918.

INDIAN IMMIGRATION COMMITTEE.

A MEETING of the Indian Immigration Committee was held at Kuala Lumpur, on 5th May, 1918.

There were present: The Controller of Labour (Mr. J. R. O. Aldworth), Chairman, the Principal Medical Officer, Federated Malay States (Dr. C. L. Sansom, C.M.G.), Mr. W. Duncan, the Hon'ble Mr. F. G. Harvey, the Hon'ble Mr. J. Mitchell and Mr. E. E. Smith, with the Secretary, Mr. E. W. F. Gilman, Deputy Controller of Labour, Penang.

The following statements of arrivals and departures of Southern Indians for the period 1st January to 30th April, 1918, and for the corresponding periods in the five preceding years, were laid before the Committee:

ARRIVALS.

	State-aided.		Ordinary.	
Year.	Adults.	Minors.	Adults.	Minors.
1913	15,707	1,233	6,391	455
1914	11,875	988	5,682	340
1915	4,364	291	2,178	141
1916	12,162	1,076	5,389	522
1917	15,171	1,455	6,121	432
1918	19,008	1,882	3,754	278

DEPARTURES.

Year.	Adults.	Minors.
1913	27,827	1,347
1914	27,659	1,336
1915	21,429	996
1916	20,996	804
1917	22,751	889
1918	22,495	906

A return was presented showing that the number of kangani licences registered in Penang from 1st January to 30th April was 3,935 compared with 5,183 registered in the corresponding period of 1917.

During the first four months of the year, registration of 26 licences was refused at Penang and 76 were cancelled in consequence of reports received from the Emigration Agents in India.

The total number of licences authorized up to the end of June was 6,189, including 227 to "new" estates.

Various appeals were considered and a further allotment of 214 licences was approved.

A further issue was also approved to all estates during July and August of one-sixth of the number of licences allotted to them during the first half year, with a minimum of one licence to each estate.

The allotment of recruiting licences for 1919 would be put on the agenda for the next meeting of the Committee.

In connection with the recent order of the Madras Government prohibiting the emigration of adult males under the age of 25 years, it was decided to ask the Government of the Federated Malay States

to make representations to the Government of Madras to the effect that registered licence-holders who have left their wives in Malaya be permitted to return to this country.

It was estimated that the numbers likely to be affected if this concession were given would not exceed 100.

The question of the train fares of rejected coolies was discussed. The Chairman emphasized the importance to recruiting of maintaining the rule that in normal circumstances the cost should be recovered from the kangani; and the Committee concurred. In the case of those rejected owing to the recent order as being below 25 years of age it was agreed that the cost should be borne by the Committee for one week after the communication of the order to the Financial Agents.

A statement of quarantine expenses was submitted and considered, showing that the average cost per head at each station for the first quarter of 1918 was as follows:

Penang	$2.49
Port Swettenham	1.88
General average	2.17

Audited accounts for the half year ending 31st March were laid on the table and passed after consideration. Arrears of assessment were considered but it was decided not to write off any item.

It was decided, subject to the consent of His Excellency the High Commissioner, to prescribe for the 3rd and 4th quarters of 1918 a quarterly rate of $2 to be paid by every employer in respect of every Indian labourer employed or working on the place of employment during the respective quarters.

Similar rates were prescribed for Johore, Kelantan, Kedah and Perlis.

The number of working days prescribed in a quarter for the purpose of calculating this assessment was again fixed at 78 for the next two quarters.

It was decided to pay a recruiting allowance of $5 on account of all labourers recruited by licensed kanganies introduced during the 3rd and 4th quarters of 1918.

Correspondence was read regarding the provision of midwives for estates. The Principal Medical Officer stated that at both the Kuala Lumpur and Taiping hospitals it would be possible to train up to 10 women at a time. The Chairman presented the report of the Home for Decrepit Indians for the six months ending 31st March. One hundred and thirty-seven had been admitted during this period, 78 repatriated to India and the number remaining on 31st March, 1918, was 50.

The Chairman stated that the five years' contract with the British India Steam Navigation Company which expired on 11th February, 1918, had been extended for a further term of two years. There was an increase of 25 per cent. in the passage rates: the fares for assisted passengers with passages paid out of the Indian Immigration Fund being now as follows:

	Rs.	*as.*
From Madras to Penang or Port Swettenham ...	15	00
„ „ Singapore	17	8
From Negapatam to Penang or Port Swettenham	12	8
„ „ Singapore	15	00

MINUTES OF ANNUAL GENERAL MEETING OF THE PLANTERS' ASSOCIATION OF MALAYA,

held at No. 12, Market Street, Kuala Lumpur, on 24th April, 1918, at 11 a.m.

PRESENT:

The Honourable Mr. F. G. Harvey (*in the Chair*)
Mr. H. C. E. Zacharias (*Secretary*)

and the following MEMBERS:

From Batang Padang D.P.A.	... Messrs.	H. Gordon Graham and J. H. Allard
„ Batu Tiga D.P.A.	... „	C. Henly, T. J. Cumming, M. A. P. Gilman, G. H. Bennett, Carlyle Bell, W. H. Bragg, C. N. Crush and W. S. Reeve-Tucker
„ Central Pahang P.A.	... Mr.	P. J. A. Williams
„ „ Perak „	... Messrs.	J. S. Ferguson, P. G. Lawford, E. L. D. Evans and A. B. Milne
„ Johore P.A.	„	C. W. Bradburne, Chas. Prentice and D. A. Ross
„ Kajang D.P.A.	„	E. N. T. Cummins, E. G. Leyne and A. C. Hayton
„ Kapar „	„	L. Mooijaart and W. P. Okeden
„ Kelantan P.A. ...	... Mr.	Geo. A. John
„ Klang D.P.A. ...	... Messrs.	H. R. Quartley, J. French, Chris. Harrison, R. Napier Hendrie and R. Battiscombe
„ Kuala Langat D.P.A.	... „	G. C. Ash, H. O. Kennedy and F. H. Mustard
„ Kuala Lumpur „	... „	F. Clyde Jeavons, M. Sharpe-Smith, D. S. Gardner, R. Spearman Armstrong, F. S. Ritchie (*f.* H. Armstrong) and Lt.-Col. A. J. Fox
„ Kuala Selangor „	... „	L. A. Irving, R. S. McCulloch, H. B. Dudley, Thos. H. Menzies and William Gordon
„ Lower Perak P.A.	... „	B. H. Dodgson, R. G. Bayley, W. Dell, W. R. C. Gray and F. Adelborg
„ Malay Pen. Agl. Assn.	... Mr.	J. W. Kennedy
„ Negri Sembilan P.A.	... Messrs.	J. Davidson McCulloch, C. Ritchie, Geo. Grant, G. W. Hingston, J. Bruce and R. Gooch
„ Taiping P.A.	„	A. H. Malet and W. H. Tate
„ Ulu Selangor D.P.A.	... „	W. de L. Brooke, G. C. Bailey, M. D. Fallon and N. H. Dakeyne.

HONORARY MEMBERS.—Mr. J. R. O. Aldworth (Controller of Labour, F.M.S.) and Mr. L. Lewton-Brain (Director of Agriculture, F.M.S.)

VISITORS.—Mr. V. Sanchelli and Dr. Malcolm Watson.

The Hon'ble Mr. F. G. Harvey, having, on the motion of Mr. McCulloch, seconded by Col. Fox, and unanimously passed, taken

the chair, thanks the meeting for asking him to occupy the chair during the temporary absence of their Chairman, the Hon'ble Mr. R. C. M. Kindersley.

He reads the following telegram and letter received from the latter:

"PAM, KUALA LUMPUR.

"Please convey annual meeting keen regret unable be present.

"KINDERSLEY."

"HONGKONG,

"*9th April, 1918.*

"DEAR SIR,

"I very much regret that I am unable to return to Selangor until the end of this month and consequently shall not be present at the Annual Meeting of the Association.

"Will you kindly convey my apologies to the meeting and my keen regret that I am unable to be present.

"Yours, etc.,

"(Sd.) R. C. M. KINDERSLEY.

"H. C. E. ZACHARIAS, ESQ.,

"SECRETARY,

"PLANTERS' ASSOCIATION OF MALAYA,

"KUALA LUMPUR."

Occupying the chair as he was without being in the least prepared for the work, it seemed to him that they would be well advised if they reconsidered a suggestion put forward some considerable time ago by Mr. Milne—*viz.*, that the Association should elect annually a Vice-Chairman in addition to a Chairman. This would ensure someone being fully conversant with the business that was to come before any meeting over which he might be called upon to preside, and he would like the question to be considered during the ensuing year. In the meantime he would endeavour to discharge as best as he could the responsibilities they had placed on him to-day.

1. Mr. CUMMINS proposes, Mr. FERGUSON seconds and it is agreed to that the minutes be taken as read and be confirmed.

The minutes having been signed

Mr. CUMMINS enquires whether it would not be possible to get out the printed minutes quicker than was done at present.

The SECRETARY explains the present procedure of getting the minutes printed and suggests an improvement for the consideration of the Standing Committee.

The matter is referred to the Standing Committee accordingly.

2.—WAR RELIEF.

The SECRETARY says that all the figures for the year were found on page 11 of the Annual Report. In addition he submits the following statement *re* individual payments received to the end of the financial year:

PLANTERS' WAR RELIEF FUND.

	$ c.	$ c.
BATANG PADANG.		
Davidson, R. ...	50.00	
		50.00
BATU TIGA.		
Ard, J. G.	20.00	
Arter, J. S.	35.00	
Balloch, R. B. ...	10.00	
Begg, N. C.	25.00	
Bell, C.	125.00	
Bennett, G. H. ...	125.00	
Bragg, W. H. ...	100.00	
Chalmers, A. P. ...	45.00	
Crush, C. N. ...	50.00	
Cumming, T. J. ...	125.00	
Gilman, M. A. P. ...	20.00	
Glenmarie Est. Staffs	35.00	
Davidson, D. C. K....	60.00	
Orr, H. Douglas ...	30.00	
O'Malley, F. B. ...	20.00	
Robertson, J. A. ...	50.00	
Sansom, P. N. ...	75.00	
Scott, J. M.	26.66	
Spooner, A. F. ...	100.00	
Tucker, W. S. Reeve-	30.00	
Webb, C. M. ...	25.00	
Will, R. W.	40.00	
Williamson, J. ...	20.00	
		1,191.66
CENTRAL PAHANG.		
Birkemose, F. ...	80.00	
McVittie, D. D. ...	60.00	
Sungei Bilut Estate	40.00	
Williams, P. J. A. ...	121.50	
Willis, E. J. ...	74.75	
		376.25
CENTRAL PERAK.		
Jonklaas, W. O. ...	100.00	
Lancaster, H. de Z....	75.00	
Robins, N.	25.00	
Wilson, T. K. ...	75.00	
		275.00
Carried forward ...		1,892.91

	$ c.	$ c.
Brought forward ...		1,892.91
JOHORE		
Adamson, H. ...	79.25	
Bell, C. E.	40.00	
Bolton, G. V. ...	126.00	
Fowler, A. B. ...	60.00	
Jessen, G.	48.00	
Ross, D. A.	199.25	
		552.50
KAJANG.		
Beatty, C.	40.00	
Clerk, G. P.	80.00	
Cummins, E. N. T.	100.00	
Dakeyne, O. P. ...	125.00	
Ferrers, C. R. ...	40.00	
Fowler, H. O. ...	17.00	
Kinder, C.	40.00	
Kindersley, R. C. M.	125.00	
Mactaggart, R. K. ...	21.00	
Messney, R. F. ...	45.00	
Miller, C. H. ...	30.00	
Moullin, H. R. ...	75.00	
Paul, C.	25.00	
Pinhorn, P. R. ...	30.00	
Quinton, L. M. ...	30.00	
Schwabe, E. M. ...	80.00	
Solbe, H. E. G. ...	150.00	
Sparshott, H. C. ...	40.00	
Tyler, E. N.	100.00	
Wiggins, T. G. ...	50.00	
		1,243.00
KAPAR.		
Beckles, J. E. ...	10.00	
Case, W. R.	75.00	
Fisher, N.	150.00	
Leslie, P. W. ...	30.00	
Mahler, A.	25.00	
Mooijaart, L. ...	40.00	
O'Brien, W. L. R. ...	125.00	
Okeden, W. P. ...	40.00	
Pratt, J. C.	36.00	
Stonehewer, R. S. ...	85.00	
Tedlie, T. H. ...	50.00	
		666.00
Carried forward ...		4,354.41

	$ c.	$ c.
Brought forward ...		4,354.41
KELANTAN		
Anderson, W. G. ...	75.00	
Archer, L. D. ...	75.00	
Taylor, A. N. ...	50.00	
		200.00
KLANG.		
Buxton, C. A. ...	80.00	
Gray, F. E. A. ...	30.00	
Greenhill, R. D. ...	100.00	
Gulland, D. L. ...	40.00	
Maguire, C.	50.00	
McNeill, F.	50.00	
Prior, E. B.	75.00	
Roberts, C. L. ...	30.00	
Smith, C. Hammond	125.00	
Trollope, F. A. ...	75.00	
Wakefield, E. C. ...	40.00	
		695.00
KUALA LANGAT.		
Irvine, H. C. d'Arcy...	60.00	
Lendrum, J. B. ...	75.00	
Mann, J. P.	50.00	
Munro, R. W. ...	80.00	
		265.00
KUALA LUMPUR.		
Armstrong, H. ...	125.00	
Barnet, G. P. ...	125.00	
Barwise, D. R. ...	72.00	
Campbell, F. M. ...	125.00	
Coppens, P.	40.00	
Castlefield Estate ...	120.00	
Douglas, J. B. ...	66.60	
Farrell, M.	50.00	
Fraser, W. D. ...	80.00	
Harvey, F. G. ...	100.00	
Harvey, T. R. ...	50.00	
Jeavons, F. C. ...	125.00	
Laddell, R. G. ...	100.00	
MacCallum, R. A. ...	44.00	
McCrow, D. W. ...	50.00	
Smith, M. Sharpe ...	128.55	
Wilkinson, H. B. ...	100.00	
Zacharias, H. C. E....	75.00	
		1,576.15
KUALA SELANGOR.		
Brown, T. L. ...	50.00	
Estrange, T. R. L. ...	100.00	
Fesq, W.	75.00	
Gordon, W. M. ...	85.00	
Carried forward ...		7,090.56

	$ c.	$ c.
Brought forward ...		7,090.56
KUALA SELANGOR —(*cont.*)		
Irving, L. A. ...	150.00	
Mercer, R. W. G. ...	30.00	
Moore, Thomas ...	125.00	
Ransom, R. H. ...	25.00	
Stevens, T. L. ...	80.00	
E. D. M. K. K. ...	160.00	
		880.00
LOWER PERAK.		
Bayley, H.	75.00	
Bayley, R. G. ...	140.00	
Brodie, T.	60.00	
Cruickshank, E. J. ...	25.00	
Dodgson, R. H. ...	50.00	
Dukes, M. B.	50.00	
Evans, R. C.... ...	50.00	
Park, H. H.	65.00	
Symes, A. B. ...	45.00	
Tobutt, K.	50.00	
		610.00
M. P. A. A.		
Baber, E.	75.00	
Carless, H. G. ...	60.00	
Darke, A. E. G. ...	100.00	
Hargreaves, J. ...	50.00	
Josselyn, E. W. ...	100.00	
Mackay, C. H. ...	90.00	
Mallet, N. W. ...	40.00	
Perera, C.	20.00	
Rasmussen, G. ...	40.00	
Rickeard, H. W. ...	100.00	
		675.00
NEGRI SEMBILAN.		
Adair, H.	75.00	
Adams, T. Slade ...	100.00	
Burgess, T.	17.00	
Buyers, W.	100.00	
Clarkson, S. W. ...	50.00	
Cuthbertson, T. F. ...	100.00	
Crawford, W. P. ...	75.00	
Fenton, R. D. ...	80.00	
Foster, M. R. ...	10.00	
Grant, G.	100.00	
Handower, W. P. ...	50.00	
Hanmer, H. R. ...	70.00	
Hay, J. B.	25.50	
Hearn, A. J. ...	50.00	
Carried forward ...		9,255.56

	$ c.	$ c.
Brought forward ...		9,255.56
NEGRI SEMBILAN —(*cont.*)		
Heherr, F. J. ...	75.00	
Hickson, C. L. O'Hara	80.00	
King, E. T.	15.00	
King, H. W. F. ...	65.00	
Luschwitz, T. H. ...	10.00	
Mansfield, L. ...	70.00	
Maycock, R. M. A. ...	50.00	
Mills, E. G.	300.00	
N. Sembilan, P. A. ...	101.79	
Paterson, A. F. ...	60.00	
Ritchie, C.	75.00	
Reynolds, K. P. ...	100.00	
Smith, E. E. ...	80.00	
Swinton, C. H. ...	60.00	
Tayler, V. A. ...	250.00	
Watt, W.	50.00	
Mills, G. R.	60.00	
		2,404.29
Carried forward ...		11,659,85

	$ c.	$ c.
Brought forward ...		11,659.85
TAIPING.		
Bruas Estate ...	66.00	
Croal, T. Gordon ...	100.00	
Grant, G. A.... ...	100.00	
Moreas, H. F. ...	50.00	
Palmer, S. B. ...	44.00	
Ritchie, C.	75.00	
Ryves, V.	50.00	
Willis, A.	50.00	
		535.00
ULU SELANGOR.		
Armstrong, F. E. J....	30.00	
Brunton, Rodger ...	30.00	
Coe, D. F.	30.00	
Dakeyne, N. H. ...	60.00	
Fallon, M. D. ...	60.00	
Hastings, P. E. ...	40.00	
Kennaway, M. J. ...	50.00	
Kennedy, W. C. ...	41.00	
		341.00
Grand Total ...		12,535.85

3.—EXPORT DUTY.

The SECRETARY tables the following correspondence:

"KUALA LUMPUR,
"*4th March, 1918.*

"SIR,

"I have the honour to inform you that at the last meeting of this Association held on the 26th ulto., the question of Export Duty on Rubber was again discussed, when I was instructed to forward to you the following resolution which was unanimously agreed to—*viz.*:

> 'That this Association is strongly of opinion that Singapore prices ought to be adopted as a basis for computing the ordinary export duty on rubber and it requests Government to take the necessary steps to make this basis operative.'

"I have, etc.,

"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*

"UNDER SECRETARY,
"FEDERATED MALAY STATES,
"KUALA LUMPUR."

"KUALA LUMPUR,
"*13th March, 1918.*

"No. 14 in 2928/17.

"SIR,

"With reference to your letter dated the 4th March current forwarding a resolution passed by the Planters' Association of Malaya on the subject of the basis on which the export duty should be computed on cultivated rubber, I am directed to inform you that a notification on this subject will be published shortly.

"I have, etc.,

"(Sd.) W. MACKRAY,
"*Acting Under Secretary to Government, F.M.S.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

Mr. HARVEY thinks the result of their representations was a matter for congratulation and although it had taken a long time to put this matter right it was satisfactory to know that that had been done now.

Mr. KENNEDY is afraid that he cannot agree with Mr. Harvey that this was a matter of congratulation at all. He understands that originally Messrs. Skinner and Macfadyen had gone at great length into the whole matter and had evolved a scheme of which the sliding scale was an essential part. Now by this new order that sliding scale was done away with. Before the Skinner-Macfadyen method was introduced duty had been assessed on three different grades: now this advantage was also abolished so that now they found themselves without two of the advantages they had formerly enjoyed. Seeing that Government in 1914 had pledged itself to a sliding scale it seemed to him most unfair that now when for the first time the industry would derive benefit from that scale through exemption from duty owing to the present low prices, Government should by a stroke of the pen do away altogether with that sliding scale. Take the present price which for duty purposes was calculated at $102 per pikul. Under the sliding scale of July, 1914, the duty payable on that price would be $1.33; but the Government by cancelling the sliding scale and demanding a flat rate of $2\frac{1}{2}$ per cent. made them now pay $2.55. He would therefore propose that the Standing Committee be requested to report to the next General Meeting what further action in the matter should be taken.

Mr. QUARTLEY seconds the proposal.

Mr. TATE thinks that the assessment of duty on three grades was really wanted.

Mr. HARVEY points out that they had asked the Government for something—*viz.*, that duty be assessed on the highest Singapore price instead of the highest London price, as per Mr. Kennedy's own motion at their last meeting. This request the Government had now complied with and he therefore did not see how it was not a matter for congratulation.

Mr. KENNEDY explains that his motion was not intended to obtain anything new from Government but only to prevent Planters being done out of a privilege the value of which was only just becoming effective.

Mr. Kennedy's proposal is then put to the meeting and carried unanimously.

4.—LABOUR.

The SECRETARY submits the following correspondence:

"KUALA LUMPUR,
"*11th March, 1918.*

"No. 1312/18.

"SIR,

"I have the honour to inform you that it is reported to me that some estates are discharging labourers owing to the movement now on foot to decrease the output of rubber.

"I shall be obliged if you will keep the Government informed on this subject since if it is apparent that any large number of labourers will be discharged from rubber estates in the near future, it will be necessary for the Government to consider the question of restricting immigration to this country. I think it will be unwise to run the risk of having a large number of labourers out of work at the present time and still more pouring into the country.

"I have, etc.,
"(Sd.) E. L. BROCKMAN,
"*Chief Secretary, F.M.S.*

"THE CHAIRMAN,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

"KUALA LUMPUR,
"*12th March, 1918.*

"SIR,

"I have the honour to acknowledge receipt of your letter 1312 dated yesterday addressed to our Chairman.

"In his absence the letter was considered at a meeting of our Standing Committee held to-day when I was instructed to say that the Committee will be glad to keep you informed as to the discharge of surplus labour on estates.

"My Committee at present, however, are confident that there is no need for alarm, since although tapping has been restricted, there is plenty of other work to be done and in fact there is no lack of opportunity for work for all the labour, more especially Indian, that is now in this country or may reasonably be expected to come here.

"I have, etc.,
"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*

"THE HONOURABLE,
"THE CHIEF SECRETARY, F.M.S.,
"KUALA LUMPUR."

"KUALA LUMPUR,
"*13th April, 1918.*

"No. 460/18.

"SIR,

"I am directed to inform you that information has been received from the Government of Madras to the effect that that Government has authorized the shipment to the Straits Settlements and Federated Malay States from Madras of 73,000 labourers between 1st January and 31st December, 1918.

"The order authorizing this shipment is subject to the following conditions :

"(1) that no adult male cooly under 25 years of age shall be allowed to emigrate to Malaya between 29th March and 31st December, 1918.

"(2) that the total number of 73,000 includes both male and female adult coolies but does not include children whose emigration is unrestricted.

"I have, etc.,

"(Sd.) W. MACKRAY,
"*for Under Secretary to Government, F.M.S.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

Col. FOX comments on the prohibition of the immigration of Indian coolies under 25 years. That in itself was sufficiently serious, but what was still more so was that under this order even kanganies under 25 years who had been sent only recently to India for recruiting purposes would now not be allowed to return to this country. He had no hesitation in saying that this order would do incalculable harm to recruiting generally and thus endanger the whole industry quite apart from the considerable hardship it would entail on many individual estates.

Mr. CUMMINS suggests that as Mr. Aldworth had just returned from India he might be able to give them some information on the subject.

Mr. ALDWORTH says that the general order as contained in the Under Secretary's letter had been made and that therefore it seemed to him they had just to make the best of it. He could hardly agree that the result would be very serious for the industry as a whole although no doubt it might prove serious to some individual estates. He had gone whilst in India into figures and personally he must say he had no fear that this order would affect the general flow of labour into this country which was becoming more and more popular in India as a field for emigration. It was true that when the new order came out, as many as 40 per cent. of would-be-immigrants in the depôt at Negapatam had been rejected, but the fact was that even so there was not sufficient shipping accommodation to cope with the number of labourers desirous of coming into this country. He thinks that during the present year perhaps the proportion of women and children might be larger, but on the whole his personal impression was that they would get all the labour they were allowed.

Mr. JEAVONS agrees with Col. Fox that it was of the utmost importance that all kanganies should be allowed to return to this country. The licence issued them in this country surely should be considered their passport. Since the number of licences had been restricted employers had only sent over their best men and it was now very unfair that they should be deprived of their services.

Mr. FALLON enquiries whether it was known for what reason the age limit of 19 to 25 years had been decided upon.

Mr. OKEDEN remarks that there was also a hardship in that many of the kanganies had left their families behind. He considers that as for licences they should be allowed a further number in the place of the licences issued to kanganies who were now not allowed to return to this country.

Mr. CUMMINS proposes that the Standing Committee be instructed to make strong representations on the subject. He particularly objected to the suddenness with which the Indian Government had sprung this order on them without giving them any notice whatsoever. He quite agreed that the detention of these kanganies would seriously affect the flow of labour into this country.

Mr. HARVEY thinks personally that if the matter was put to the Indian Government they could get redress since their request after all referred only to a very small number of men, provided of course that no more kanganies of that age were sent over to India.

Mr. MOOIJAART observes that serious hardships resulted from this order but thinks that all these hardships bore more seriously on the coolies. He also associates himself with Mr. Cummins in expressing his surprise that so little courtesy should have been shown them in the matter, Government only informing them after the event of the order in question.

Mr. JEAVONS agrees with Mr. Cummins' proposal but would like to have the Standing Committee cut out so that there might be no further delay and he would therefore propose that Government be asked that all kanganies between the ages of 19 and 25 years who have left the Federated Malay States to recruit coolies be allowed to return to this country on or before the termination of the period of their licence.

This is seconded by Mr. QUARTLEY and passed unanimously.

The SECRETARY reads the following letters:

"BATU TIGA,
"*9th April, 1918.*

"DEAR SIR,

"RECRUITING.

"At a Committee Meeting of my Association held this morning at Batu Tiga, the following resolution was passed:

"That all kanganies' licences issued between 1st January and 25th February, 1918, over and above the number allotted for January and February, 1918, be considered as extra licences and not taken as part of the licences allotted for the remainder of the year.

"I should be glad therefore if you will place the matter on the agenda for the next meeting of the Planters' Association of Malaya which I understand is likely to take place towards the end of this month.

"Yours, etc.,

"(Sd.) W. S. REEVE-TUCKER,
"*Hon. Secretary.*

"THE SECRETARY.
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

Mr. BENNETT reminds the meeting that the drastic change made in January in respect of the restriction of the issue of licences had also been sprung on them without any notice. He therefore would propose the resolution sent in by his Association as just read out by the Secretary. It only seemed to be fair to him that those licences which had been issued before the change in system was made should not count against the allotment of the respective employer for the year.

Mr. RITCHIE would like to know whether the number of licences already issued were presumed to provide all the labour for which shipping was available or would further licences be issued after June?

Mr. OKEDEN seconds Mr. Bennett's proposal adding that the Secretary be instructed to forward same to the Indian Immigration Committee who he understood were to meet within a week.

Mr. HARRISON wishes to know why licences were only given out for the first six months of this year.

Col. FOX says that if each licence was made out for six months and no licence was issued between July and December of this year there would be a considerable hiatus in the beginning of 1919 and besides they would miss the best recruiting season.

Mr. ALDWORTH begs leave to state that emigration to this country had become so popular in India that the whole year round had become the proper recruiting season. He emphasizes the necessity of getting out of the old idea and of sending recruiters not only in the middle of the year but all the year round, distributing immigration as evenly as possible throughout the year. It might interest them to know that since December the number of immigrants had constituted record figures for every single month—*viz.*:

December, 1917	... ...	4,958
January, 1918	... ...	3,272
February „	... ...	5,943½
March „	... ...	5,824½
April to-date	... ...	6,402

Mr. BENNETT's proposal is then put to the meeting and carried unanimously.

Mr. CUMMINS proposes that the question of the recruitment in India of coolies between the ages of 19 and 25 be referred to the Standing Committee.

Col. Fox seconds the proposal which is carried unanimously.

Mr. RITCHIE proposes that the Indian Immigration Committee be asked to consider at their next meeting the possibility of a further issue of licences after the 30th of June.

Mr. REEVE-TUCKER enquires what the basis was on which licences at present were being issued and is referred to page 14 of the minutes of the meeting of 26th February.

(*b*).—JAVANESE LABOUR.

The SECRETARY reads correspondence with the Under Secretary on the subject.

Col. FOX proposes that the Standing Committee be instructed to deal with this matter.

This is seconded by Mr. MCCULLOCH and passed.

5.—MEDICAL MATTERS.

The SECRETARY submits the following letter:

"KUALA LUMPUR,
"*4th March, 1918.*

"LETTER TO ALL DISTRICT PLANTERS' ASSOCIATIONS.

"DEAR SIR,

"Further to my letter of the 1st of January *re* midwives, I am instructed to inform you that at the last meeting of this Association held on the 26th ulto. Dr. Watson gave it as his opinion that, although every estate could not give employment to a midwife, it was desirable that midwives should be attached to group hospitals, etc. according to locality. He further reported that some of these women were getting a salary of $30 per mensem and an allowance for a servant and were also attending women before confinement.

"The Bishop of Singapore informed the meeting that the Medical Mission at Malacca would be glad to train any suitable Christian women as midwives and that the institution had actually supplied one to Dr. Watson.

"The Acting Controller of Labour expressed his readiness to obtain midwives from India and invited members to write to him in regard to their requirements in this connection.

"The Government hospital in Johore apparently also undertakes to train midwives at a cost of $20, the training extending over 18 months.

"At the close of the discussion I was instructed to bring the above facts to the notice of all Associations and to express the hope that all members will increasingly make use of the facilities offered.

"Believe me, etc.,

"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*"

"KUALA LUMPUR,
"*4th March, 1918.*

"SIR,

"I have the honour to acknowledge receipt of your letter 447 of the 1st of December and to thank you for the information contained therein which has been passed on to the various Constituent Associations.

"The matter was further brought again to the notice of all members at the last meeting of this Association held on the 26th ult. when reports were received from a number of delegates showing that members are fully alive to the desirability of engaging midwives and are making serious endeavours to supply the want.

"I have, etc.,
"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*

"CONTROLLER OF LABOUR, F.M.S.,
"KUALA LUMPUR."

"LABOUR OFFICE,
"*Penang, 8th April, 1918.*

"No. 4 in D.C.L. Pg. (Misc.) 141/18.

"SIR,

"I have the honour to forward herewith for the information of your Association a copy of a letter received by me from Dr. J. C. Ford, Superintendent, Emigration Depôt, Negapatam, on the subject of the obtaining of trained midwives from India for employment on estates in the Straits Settlements and Federated Malay States.

"2. You will see that Dr. Ford does not hold out much hope of our ability to obtain such women in the numbers we are likely to require but until such time as the necessary trained women can be turned out locally we can only look to this source of supply and we can rely on Dr. Ford doing his best: only we must be prepared for delay and disappointment.

"I have, etc.,
"(Sd.) E. W. F. GILMAN,
"*Dy. Controller of Labour, Penang.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

"NEGAPATAM,
"*13th March, 1918.*

"DEAR GILMAN,

"I have been able to procure one midwife of the Naidu class, speaking Telugu as well as Tamil. I have engaged her on $40; $45 after six months, $50 after a further period of six months.

"2. I very much doubt whether all requirements can be met from this Presidency. The midwives are trained in the two Maternity Institutions at the public expense; they get a small salary, clothing and food and must reside in the Institutions for the

period of their training, which I think is six months. There is an urgent demand for these so-trained women for the Local Fund hospitals and dispensaries, and the demand cannot be met as the women do not come for training in sufficient numbers.

"3. I would advise that every endeavour be made to procure Tamil and Telugu women on estates for training in the Maternity Institutions over there.

"The midwife (native) here is more a maternity ayah. It is not necessary to be literate; they have to attend so many confinements and are taught to be clean and the usual routine methods during confinement. They are also given lectures, very elementary.

"I am sure a small beginning with the more intelligent women on estates will establish in a few years a good local supply of midwife ayahs.

"Yours, etc.,

"(Sd.) J. C. COLIN FORD."

Mr. RITCHIE informs the meeting that after three months he was still unable to get a definite reply as to the training of a suitable Tamil woman as midwife at the General Hospital, Kuala Lumpur. In view of Dr. Ford's letter this certainly was most disappointing and he would therefore move that the Under Secretary be asked for information with regard to the local training of midwives for estates.

Mr. JEAVONS seconds the proposal which is carried unanimously.

The SECRETARY tables the following correspondence:

"KUALA LUMPUR,

"*12th March, 1918.*

"No. 4528/16.

"SIR,

"With further reference to my letter of 28th, January I have the honour to inform you that the suggestion made by the Government of Madras that your Government should take over control of estate hospitals and dispensaries in the Federated Malay States, has now been thoroughly discussed by practically all organized bodies of Planters in the Malay Peninsula.

"A copy of your letter under reply with a covering letter, a memorandum by the Standing Committee and the minutes of the Inaugural Meeting of the Society of Estate Medical Officers (copies of which are attached for your information) were sent by me to all Constituent Associations, so as to enable their delegates to express the fully considered judgment of their respective Associations.

"As a result, the above-mentioned suggestion was unanimously negatived by the meeting of delegates held on 26th February, at Penang, no less than eleven out of our seventeen Constituent Associations presenting formal resolutions against any such proposal.

"I am therefore now instructed by the Standing Committee of this Association to convey to you this unanimous reply of the whole Planting Community represented by it and to express a hope that your Government will consequently refuse to entertain the proposal of the Madras Government.

"I would add that we have good reason for stating that, if the Government of Madras has made any such proposal out of deference to popular Indian demand for the betterment of Indians in this country, then the Government of Madras is wholly misinformed in believing that the transformation of estate hospitals into Government hospitals would be considered by Indian opinion as other than a retrograde step, directed against the interests of Indian Immigrants.

"I have, etc.,
"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*

"UNDER SECRETARY,
"FEDERATED MALAY STATES,
"KUALA LUMPUR."

"KUALA LUMPUR,
"*27th March, 1918.*

"No. 4528/16.

"SIR,

"With reference to your letter of the 12th March, 1918, I am directed to inform you that a measure is being drafted based on the provisions of the Straits Settlements Ordinances No. 7 of 1911 and 18 of 1913, dealing with the control of estate hospitals and dispensaries in the Federated Malay States.

2. "A copy of the draft will be forwarded to you in due course.

"I have, etc.,
"(Sd.) M. S. H. MCARTHUR,
"*Under Secretary to Government, F.M.S.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

"KUALA LUMPUR,
"*12th March, 1918.*

"SIR,

"I have the honour to acknowledge receipt of your letter 3931 of the 15th of February and in reply am directed to state that for reasons fully set out in our Chairman's letter of 27th December, 1916, this Association does not consider the employment of assistant surgeons in the interests of the immigrant estate population.

"As regards sub-assistant surgeons, the salaries paid at present to such men range from $75 to $175 per mensem according to length of service, locality, etc.

"In view however of the explicit statement made by the Government of Madras that the present supply of such men is insufficient even for the requirements of the Madras Presidency the whole question at present would seem to be of little more than academic interest.

"I have, etc.,

"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*

"UNDER SECRETARY,
"FEDERATED MALAY STATES,
"KUALA LUMPUR."

The SECRETARY also tables minute paper No. 7 of 1918 laid before the Federal Council at their last meeting in April.

Mr. MOOIJAART says that the Standing Committee to whom the subject of hospital question and the question of Medical Service generally had been referred had unanimously agreed to the following two resolutions which he now formally begs to move:

The Standing Committee to whom this subject has been referred recommends as follows:—

(1) Seeing that the re-organization of the Medical Service is impossible without that of the whole Civil Service, and further, that therefore such a proposal should come from all the sections of the community: that this matter be referred to a General Joint Meeting of all organized bodies in British Malaya.

(2) That the above General Joint Committee be made permanent.

It was obvious that a question like the re-organization of one or all of the Government services would commend much greater consideration if it was put forward by all the classes and sections of the community who benefited by the service.

Mr. RITCHIE seconds the proposal and does not think that much explanation was necessary as to the object aimed at by the resolution. Any recommendation put forward by such a joint committee would naturally carry much more weight than one emanating from the Planting Community only.

Mr. HARVEY supports the motion and adds that such a joint committee was of obvious usefulness not only for the purpose in hand but generally and he therefore thinks it of great importance to make it permanent.

Col. FOX: Another Sinn Fein committee, in fact?

Mr. MCCULLOCH doubts whether all members fully realized the importance of the resolution which perhaps was the most far reaching that had ever come before the Planter's Association of Malaya. The resolution was the outcome of many meetings both general and in committee and if adopted would, he hoped, result in the form of a permanent joint committee which would represent the whole of British Malaya in a way that no other body had ever attempted to

do and he sincerely hoped that it would eventually lead to the formation of a United British Malaya Association which would voice the whole of British Malaya from north to south. He therefore hopes that this meeting would not merely pass the recommendations in a lukewarm manner but would give it their whole hearted and enthusiastic support. (Applause.)

The resolutions are then put to the meeting and carried unanimously.

6.—PREVENTIVE QUARANTINE.

Mr. HARVEY says that the memorandum of Dr. Day and Mr. Mooijaart as tabled had only this day been received from the printers and members had therefore had no opportunity to consider same. He took it that the matter had better be deferred until their next General Meeting.

Agreed to.

7.—DEPARTMENT OF AGRICULTURE.

The SECRETARY tables the following correspondence:

"KUALA LUMPUR,
"*4th March, 1918.*

"SIR,

"I have the honour to inform you that at the General Meeting of this Association held on the 26th ultimo the following resolution was unanimously passed—*viz.*:

> "'That this Association desires to place on record its appreciation of the work of the officers of the Department of Agriculture, Federated Malay States, in connection with the Locust Pest.'

"I have, etc.,

"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*

"DIRECTOR OF AGRICULTURE,
"FEDERATED MALAY STATES,
"KUALA LUMPUR."

"KUALA LUMPUR,
"*20th March, 1918.*

"No. 2 in 309/18.

"SIR,

"I have the honour to acknowledge receipt of your letter of the 4th instant conveying a resolution of the Planters' Association of Malaya with reference to the work of this Department in Locust destruction.

"2. I have conveyed the terms of the resolution to all the officers concerned and I would wish to assure you that the action taken by your Association is highly appreciated.

"I have, etc.,

"(Sd.) L. LEWTON-BRAIN,

"*Director of Agriculture, F.M.S.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

Mr. KENNEDY is confident of no exaggeration in saying that the rubber industry depended entirely on the aid it received from scientists and amongst them it was obvious that the Federated Malay States Department of Agriculture would rank first. He therefore considers it of utmost importance that that Department should be kept efficient and the first essential thing to that end was to pay adequate salaries. He was shocked to find how under-paid many of these scientific officers were. Some of them received not more than $300 per mensem, *i.e.*, a little more than what they considered the absolute minimum salary for an Assistant just out from Home. He feels that they needed the very best men that science could give them, but on the present scale of pay it was obvious that no incentive was offered. Government could not possibly expect to get good men or if they got them to keep them if the pay offered was so much out of proportion to the value of the services rendered. At the last meeting of the Federal Council Mr. Kenion had made a forcible speech on behalf of the Cadet service and he would therefore now suggest that this Association should appeal to the High Commissioner on behalf of the officers of the Department of Agriculture.

Mr. CUMMINS quite agrees with all that Mr. Kennedy had said—*viz.*, that the Agricultural Department at present was under-paid, under-staffed and over-worked.

Mr. RITCHIE whilst quite agreeing suggests that this proposal is really already covered by the resolutions they had just passed subsection 5 and he therefore thinks that Mr. Kennedy's proposal had better take the form of a recommendation to the members of the joint committee.

Mr. JEAVONS supports the idea generally and Mr. Kennedy having adopted Mr. Ritchie's suggestion, the proposal is carried in that form.

8.—SUNDAY LABOUR.

The SECRETARY tables Annual Report of the A.V.R.O.S. and reports the receipt of the following resolutions:

FROM BATU TIGA DISTRICT PLANTERS' ASSOCIATION.—"That this Association is very much against the stoppage of Sunday labour by legislation. It would appear that owing to the restriction of immigration and the probable rise in the cost of foodstuffs, the stoppage of Sunday labour would be detrimental to the employees. The stoppage of Sunday labour might, however, be left to the discretion of the various managers."

From Kapar District Planters' Association.—"That this Association would welcome the restriction of tapping to six days per week and twenty-seven days per month as a supplementary means of reducing the output."

From Kajang District Planters' Association.—"That this meeting resolves that in the opinion of the Planters' Association of Malaya the employment of labour on Sundays be left to the discretion of the management of estates and views with apprehension any legislation which would tend to interfere with the employment of labour on Sundays."

From Lower Perak Planters' Association.—"That this Association is strongly opposed to any measure for the abolition of Sunday labour being made universal and it considers that only managers and directors of estates are competent to judge whether they require Sunday labour or not. Also this Association considers that this exceedingly important matter should be dealt with by the planting community only."

From Kuala Lumpur District Planters' Association.—"That the question of Sunday labour be left to the discretion of estate managers."

Delegates inform the chair that the Kuala Selangor, Central Perak and Taiping Associations had passed resolutions similar to that passed by the Kuala Lumpur Association and that the Klang Association had passed one similar to the Kajang Association.

Mr. Ritchie thinks that after the discussion which this question had received it was unnecessary for him to speak further on the subject and he therefore contented himself with moving what amounted to the proposal put forward by Mr. Duncan at their last meeting—*viz.*, "that this Association is in sympathy with the principle of Sunday rest but considers that its application must be left entirely to each individual manager."

Mr. Mooijaart seconds Mr. Ritchie's proposal.

Mr. Cummins cautions members against the advocacy of any interference on the part of Government and he therefore viewed with apprehension any expression of sympathy with the principle of Sunday rest which might easily lead to Government applying it indiscriminately.

Col. Fox is dead against interference on the part of anybody and strongly urges the meeting to declare in favour of the principle to let managers run their estates without dictation from outsiders. He therefore would move "that the question of Sunday labour be left to the discretion of estate managers."

Mr. Jeavons seconds this motion.

Mr. Harvey before putting the motion to the meeting reads extract from a letter received from Mr. Kindersley in which he says "I see there was a big meeting at Penang. I wish I could have been there to back up the Sunday rest proposal. I have always been in favour of it and quite agreed with Maurice Maude." Personally he also was against all Sunday labour as he had always been and had done his best to obviate any labour on Sundays.

The proposal moved by Col. Fox is then put to the meeting and carried with two dissentients.

9.—CROP RESTRICTION.

The SECRETARY tables a circular which had recently been sent out by an Association of local rubber growers which was in course of formation.

Mr. HARVEY says that two joint-meetings had been held on the subject—one consisting of the Standing Committee of the Planters' Association of Malaya, the Rubber Growers' Association Local Committee and representatives of the Chambers of Commerce, Singapore, Penang and the Federated Malay States; and the second of the Standing Committee, the Rubber Growers' Association Local Committee and the Committee of this new Association of local producers. As a result they had unanimously come to the conclusion that if approximately the same results could be obtained, voluntary action was preferable to legislation; and in the meantime they were awaiting the result of the replies this local circular would elicit.

In reply to a question he understands that to-date the owners of 652,825 cultivated acres had agreed to the Rubber Growers' Association proposals and that of this area 366,700 acres were situated in British Malaya.

Mr. MILNE wonders whether all this crop restriction outcry was really genuine or merely the cupidity of the marketeer working on the stupidity of the producer. He feels that before they did anything further they should make quite certain that there was an authoritative demand on the part of the Allies for the restriction of their crop. If restriction was necessary, if it would help ever so little in tilting the balance of this ghastly war—then let Government say definitely to the planters that they should not produce more than so many tons of rubber and then they all would gladly and unquestioningly obey.

Mr. HARVEY says that information had been asked for regarding the probable total requirements of rubber in the world during the current year. It was only on this basis that they could know what amount of rubber they should produce and whether and how much they should restrict their output. In the meantime, he certainly hoped that voluntary restriction would be practised all round.

Mr. MCCULLOCH thinks that if Mr. Milne wished for any authoritative statement, he would find that under section 14 in the agenda, "Baling of Rubber."

10.—ANNUAL REPORT.

Mr. HARVEY says that the Report and Accounts had been circulated and he therefore would take them as read and propose their adoption.

This is seconded by Col. Fox and carried unanimously.

11.—CHAIRMAN.

Mr. HARVEY says that the only nominee put forward this year was the Hon'ble Mr. R. C. M. Kindersley whom he would therefore now declare duly elected. (Applause.)

12.—ELECTIONS.

A ballot for five members of the Standing Committee and ten members of the Benevolent Fund Committee then takes place.

Messrs. Gilman and Fallon are appointed scrutineers and announce the result of the votes cast to be as follows:

Planters' Association of Malaya Standing Committee—

Mr. F. G. Harvey	Mr. L. Mooijaart
„ J. D. McCulloch	„ H. R. Quartley
„ J. W. Kennedy	

Benevolent Fund Committee—

Mr. Wm. Duncan	Mr. R. Madge
„ H. E. G. Solbe	The Hon'ble Mr. A. K. E. Hampshire
„ E. B. Prior	Rev. A. B. Champion
„ J. D. McCulloch	„ A. D. Harcus
„ V. A. Tayler	
„ L. A. Irving	

Mr. HARVEY then proposes that Mr. Zacharias be re-elected Secretary for the ensuing year.

This is seconded by Mr. Milne and carried unanimously.

The meeting is then adjourned at 1.15 and resumed at 2.15 p.m.

13.—BUDGET.

The SECRETARY, submits the budget for 1918-1919:

To *Agricultural Bulletin*, other printing and stationery	$1,500.00
„ Library	100.00
„ Rent	600.00
„ Postal	500.00
„ Legal Advice	250.00
„ Travelling & other contingencies	1,250.00
„ Secretary's salary	3,000.00
„ Clerk's	600.00
„ Furniture	600.00
„ Surplus balance	271.86
Total	$8,671.86

By Subscriptions @ 1½ cents per cultivated acre:	
„ Kelantan P. A.	$ 229.85
„ Malay Peninsula Agri. Association	1,317.32
„ Taiping P. A.	433.08
„ Central Perak P. A.	461.55
„ Lower Perak P. A.	538.22
„ Batang Padang D. P. A.	278.58
„ Central Pahang P. A.	55.68
„ Ulu Selangor D. P. A.	213.90
„ Kuala Lumpur D. P. A.	463.86
„ Batu Tiga D. P. A.	307.34
„ Klang D. P. A.	362.90
„ Kapar D. P. A.	348.50
„ Kuala Selangor D. P. A.	627.50
„ Kuala Langat D. P. A.	331.47
„ Kajang D. P. A.	450.35
„ Negri Sembilan P. A.	1,242.41
„ Johore P. A.	1,009.35
Total	$8,671.86

Mr. HARVEY puts forward the recommendations of the Standing Committee as contained in the budget. He also explains the addition of a clerical allowance to the Secretary and of travelling expenses to the Standing Committee at the rate of 10 cents per mile. As they would see, the subscription was left at 1½ cents per cultivated acre.

Mr. MILNE then proposes and Mr. JEAVONS seconds and it is carried unanimously that the budget as put forward by the Standing Committee be adopted.

14.—BALING OF RUBBER.

"The SECRETARY submits the following correspondence:

"KUALA LUMPUR,
"*28th March, 1918.*

"No. 1653/18.

"SIR,

"I am directed to inform you that a suggestion has been made that, with a view to effecting economy in tonnage, the export of sheet rubber and plantation crepe otherwise than in pressed bales should be prohibited. This suggestion has been made by importers in the United States of America and has been referred by the Right Honourable the Secretary of State for the Colonies for the consideration of the High Commissioner.

"2. It is stated that the Government of India would raise no difficulties with regard to the export of jute goods to Malaya for this purpose and it is understood that pressing machines could be readily obtained from the United States of America and could be in working order out here in about four months.

"3. I am to inquire whether your Chamber see any valid objection to such a prohibition as is suggested, having in view the urgent necessity of taking every possible step to economize in tonnage. There seems reason to apprehend that if some such action as this is not taken the authorities in the United States of America may impose drastic curtailment on the imports of rubber from the East.

"I have, etc.,

"(Sd.) S. MCARTHUR,
"*Under Secretary to Government, F.M.S.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

"KUALA LUMPUR,
"*8th April, 1918.*

"SIR,

"I have the honour to acknowledge receipt of your letter 1653 of the 28th ulto. and in reply beg to state that as an alternative to the restriction of the export of rubber to America, this Association would certainly prefer the prohibition of the export of rubber otherwise than in pressed bales.

"I have, etc.,

"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*

"UNDER SECRETARY,
"FEDERATED MALAY STATES,
"KUALA LUMPUR."

Mr. HARVEY says that the real point was to get the maximum amount of rubber into five cubic feet and it was irrevelant whether wooden cases were retained or not. The Singapore Chamber of Commerce and the Rubber Club of America were apparently in correspondence on the subject which was still under discussion but it was obvious that some steps would have to be taken to reduce the bulk of the rubber as shipped by them.

15.—AGRICULTURAL CONFERENCE.

The SECRETARY submits the following letter:

"KUALA LUMPUR,
"*27th March, 1918.*

"SIR,

"I am directed to forward you copies of minutes of meetings of the Agricultural Conference Committee and to ask if you will kindly arrange that the meeting of the Planters' Association of Malaya be held on Tuesday the 20th August, 1918, which date has been fixed for the opening day of the forthcoming Agricultural Conference.

"I have, etc.,

"(Sd.) B. BUNTING,
"*Hon. Secretary,*
"*Agricultural Conference Committee.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

Mr. HARVEY says that when this Agricultural Conference was mooted the principal attraction had been to obtain the services of scientists from other countries. The Government had been asked to issue these invitations and generally to recognize the Conference officially. This they had recently refused to do and he personally would like to point out to them how troublesome and uncertain travelling at present was. It was a matter for debate whether the action of this Government was short-sighted but he put it to them whether they in this Peninsula would agree to send away their scientists as delegates for months. If they wanted no interruption in the work of their scientists why should other countries? In any case the Director of Agriculture could no longer be Chairman if such a Conference takes place and somebody else would have to undertake the matter. Personally, he thinks that such demonstrations and lectures as had recently been arranged by the Central Perak Association were by far the most valuable and he thinks that rather than have this one Conference without the help of outside scientists it would be better to hold small demonstrations all over the country. If a Conference was still to be held in this country he was afraid it would only lead to the scientists holding up the results of their investigations until then.

Mr. KENNEDY says that the cancellation of the Conference was certainly very regrettable but after all he had heard it seemed most

reasonable to agree to it. He thinks perhaps the District Associations should be asked to consider the whole question in the new light which had now been shed on it.

Mr. MILNE questions whether the seriousness of diseases was sufficiently realized. During the last few months scientists had discovered no less than five new diseases and he feels that if they could not have the ideal Conference they might well have as much of a Conference as they locally could get together. He feels that there was a good deal of pulling apart and every effort was required to bring about the co-operation of all scientists.

Mr. HENDRIE supports Mr. Milne but thinks that the question should be left to the General Conference Committee which was to meet that very afternoon.

Mr. MCCULLOCH thinks it a great pity to hold a Conference if no success was assured and thus prejudice future ones.

Mr. JEAVONS feels strongly that no more local Conference was required.

Mr. OKEDEN welcomes the idea of practical demonstrations in all districts as recently undertaken by the Central Perak Association.

Mr. RITCHIE thinks there were really two points to consider (1) that scientists should come to an agreement (2) that they should tell them what to do. (1) obviously was for a Conference of scientists only whilst (2) was the matter of a General Conference or of practical demonstrations.

Mr. HARVEY thinks that this meeting should give a lead to the Conference Committee which was to meet later on. That Committee would of course make the decision but in the meantime it would be valuable for their guidance to know what members at large thought of the idea. He might say that the Director of Agriculture was trying to co-ordinate the work of all scientists in this country and he would like to hear whether this meeting was in favour of a Conference of scientists only with a view of their coming to some agreement amongst themselves and ensuring their co-operation.

Col. FOX welcomes heartily the holding of such a Conference and the sense of the meeting being taken is unanimously in favour of same.

Mr. LEWTON-BRAIN says that he was entirely in their hands but that of course he would do the very best he could in any case.

Mr. MENZIES thinks it advisable that the meeting should declare itself definitely and therefore moves that no official general Conference be held this year.

Mr. CUMMING seconds the proposal.

Mr. HARVEY points out that no notice had been given to delegates of any such proposal and that therefore Constituent Associations had not been consulted. He therefore thinks it was out of order to proceed with a vote on that motion and asks the meeting for their opinion on this point.

Mr. MCCULLOCH agrees with Mr. Harvey and proposes that the motion of Mr. Menzies be not proceeded with.

This is seconded by Mr. Kennedy and carried.

16.—FOOD SUPPLY.

Mr. HARVEY says that recently there had been a critical time in several districts regarding the supply of parboiled rice. A deputation had waited on the Chief Secretary and eventually Mr. Mooijaart had very kindly gone to Penang to make enquiries on the spot and it was due to his endeavours that a sufficient quantity of rice had reached the affected districts in time and he therefore feels that the thanks of the Association were due to Mr. Mooijaart for the public-spirited way in which he had helped them. The price of rice was of course still high but anyhow rice was coming forward and the crisis apparently had been passed.

Mr. SHARPE-SMITH asks whether the price of rice had been fixed.

Mr. OKEDEN thinks it most regrettable that the Food Control Committee had done nothing since last year and even now had only moved under pressure from this Association. For one thing he thinks that the Railway should charge rice on truck rates and not on pikul rates as on the latter for instance $1 freight per sack was charged from Kuala Kurau to Klang as against 71 cents by boat. He would, therefore, propose that this Association ask the Railway to allow truck rates with regard to the transport of rice on the rail instead of pikul rates as at present with a view of assisting in the reduction of the price of rice.

This is seconded by Mr. SHARPE-SMITH and passed.

Mr. GORDON explains the circumstances of a case in Kuala Selangor in which it had been proved that a rice supply firm was willing to supply rice at present rates but contended that it had no stocks when it was pressed to fill old rice contracts.

Mr. CUMMINS says he had just returned from Kedah and found that the padi growers there were holding their crops for higher prices.

Mr. MOOIJAART says that for the past five years padi had been sold at five cents a gantang but that this year's crop had changed hands at between 12 to 15 cts. Parboiled rice which had been sent to Klang was being sold at 46 cts. as it had had to be transported by train. It was obvious that the price of parboiled rice could not be regulated until the price of padi was regulated.

Mr. RITCHIE suggests that the Food Control Committee of the Federated Malay States be asked to co-operate with the Food Control Committee of the Colony.

Mr. MCCULLOCH asks whether the mills had been taken over in the Federated Malay States, but not in Penang.

Mr. HARVEY explains that it was difficult to fix a maximum price for padi as there was no standard and the varieties of padi were innumerable. The Committee therefore had preferred to control the mills instead. He would explain that there were two Committees—a Food Production Committee and a Food Control Committee and that the two were not necessarily working together. In fact the whole subject bristled with difficulties and was of a complexity which admitted of no simple remedy.

Mr. LAWFORD says that his Association had approached the Food Control Committee on this subject but that after a month the letter had only been formally acknowledged.

Mr. OKEDEN thinks that sooner the Food Control Committee got to business the better.

Mr. BAILEY observes that rice was not the only question but that the Food Control Committee should enquire into the other necessaries required by Tamils. He had made careful investigations on the price of various food-stuffs and had found tremendous variations as would be seen from the following table :

Asst. Controller of Labour.	Articles.		33, Java Street.	19, Java Street.	17, Java Street.	Kader Meerah Co., 15, Batu Road.	36, Batu Road.	13, Batu Road.	Sungei Choh Kadai.
			cts.	cts.	cts.	cts.	cts.	cts.	cts.
30	Chillies ...	Katti	36	35	35	38	30	30	35
12	Onions ...	„	13	12	13	12	12	10	16
12	Soap nut ...	„	18	16	15	15	18	13	20
22	Saffron ...	„	19	24	24	24	24	24	24
20	Garlic ...	„	18	18	20	20	20	18	30
36	Gingelly oil ...	„	40	40	40	40	40	40	42
27	Neem oil ...	„	30	35	30	30	35	30	60
14	Arecanut ...	„	15	17	16	17	17	17	20
48	Tobacco ...	„	48	48	48	48	48	48	55
20	Coffee seeds ...	„	35	30	30	30	30	30	36
75	Ghee ...	„	78	75	85	75	75	75	80
65	Masi ...	„	60	60	60	60	60	60	70
10	Tamarind ...	„	10	10	12	10	10	10	10
10	Potatoes ...	„	10	10	12	10	10	10	10
12	Sugar, white ...	„	13	13	13	13	13	13	14
10	Black sugar ...	„	...	...	...	...	...	...	12
23	Coconut oil ...	„	24	24	24	24	24	24	24
40	Swiss Condensed Milk ...		45	45	45	45	45	45	45
13	Black Pea...	Chuppa	14	16	15	14	14	14	16
12	Horse Gram ...	„	...	...	...	...	13	...	15
50	Cuminseed ...	„	42	56	54	56	56	36	72
40	Pepper ...	„	45	48	42	40	40	40	45
20	Mustard ...	„	18	20	20	20	24	20	40
20	Venthayam ...	„	20	20	20	20	20	20	40
20	Aniseed ...	„	20	32	20	18	...	20	60
6	Salt ...	„	9	...	8	...	...	...	8
16	Dholl ...	„	14	14	15	14	14	13	16
10	Coriander ...	„	10	10	10	10	10	10	14

Sungei Choh kadai prices taken on 30th March, 1918.
A. C. L. prices received on 3rd April, 1918.
Kuala Lumpur prices obtained on 20th April, 1918.

(Sd.) G. C. BAILEY,
Sungei Choh Estate.

Mr. REEVE-TUCKER points out that the only commodity the price of which had so far been fixed was milk and affirms that they were not enforcing even that rule as he could prove from a case which had come to his knowledge.

Mr. HARVEY says that the remedy lay with the complainant taking the receipt to the nearest Police Station.

Mr. DAKEYNE thinks that the simple Tamil cooly had little chance of lodging a complaint at a Police Station and is aware that other classes are charged legal rates.

Mr. HARRISON says that in his case the shop's receipt did not specify the brand of milk sold and that the Police therefore refused to take action. Speaking of another commodity, coconut oil, he says the price of this had gone up 300 per cent. although it was locally produced and there never had been such a slump in copra. These and similar questions had been raised by the Klang District Planters' Association and sent to the Food Control Committee but no reply had been received.

Mr. HENDRIE reports a case in which the prosecution was unable to say under what Enactment the charge was to be made.

Mr. RITCHIE coming back to the question of rice feels that surely it ought to be possible to fix a price which though sufficiently high to ensure increased padi cultivation would yet not bear hardly on consumers.

Mr. MOOIJAART thinks that such a price was $12\frac{1}{2}$ cents per gantang, but this in itself was not enough and would have to be accompanied by a guarantee of a minimum price for a number of years.

Mr. LAWFORD remarks that if padi mills found that they have to sell their parboiled rice at a maximum price which leaves them no profit as against the price they had to pay for padi they would just simply stop milling altogether.

Mr. HARVEY replies that once the Government was owning all mills they would not be likely to pay exorbitant prices for the padi. It was true that padi growers were still holding out for higher prices but as padi was losing in weight and Government could wait longer than growers it was clear that the present impasse could not continue much longer and that a satisfactory end was in sight. To a previous speaker he would reply that the Federated Malay States Food Control Committee had requested the co-operation of the Colonial Food Control Committee.

17.—FEDERAL COUNCIL.

The SECRETARY reads the following letter and is instructed to place the subject on the agenda of the next meeting:

"SUNGKAI,
"*20th April, 1918.*

"PLANTERS' REPRESENTATION ON FEDERAL COUNCIL.

"DEAR SIR,

"The recent pleas put forward publicly by both the Federated Malay States Chamber of Mines and the Federated Malay States Chamber of Commerce for the right to nominate their own representatives on the Federal Council can scarcely have escaped your notice.

"The minutes of a half-yearly General Meeting of our Association held on 8th October, 1916, show the following record:

"'GENERAL.—The Secretary asked the opinion of the meeting whether this Association would care to agitate, through suitable channels, that the planting member on the Federal Council should

be chosen, by vote, by the Planters' Association of Malaya, as representing the planting community and not, as now, more or less arbitrarily selected by the Chief Secretary: if this were effected planters would be able to feel that they had a real representative who would of necessity represent the opinions of themselves as a whole and not be inclined as at present might happen, to tackle questions on his own responsibility and according to his single point of view.

"It was felt that the definite proposal of this measure as from a small local Association such as this one might seem a little like self-advertisement.'

"Writing for our Association: We feel that the importance of the planting industry warrants our urging Government to allow us direct representation: we are absolutely in agreement with what the chairmen of the mining and commercial bodies have said on the subject and in answer to the possible counter argument that planters would most probably elect the Chairman of the Planters' Association of Malaya, who is the gentleman usually selected by Government, we suggest the reply, firstly, that we desire the right to elect our member who shall sit at such Council Meeting with a direct mandate from his electors, and, secondly, that the qualities that make for an excellent Chairman of the Planters' Association of Malaya are not necessarily those required of the best possible advocate of our interests before the Federal Council.

"Other District Associations may be bringing the matter up at the coming Annual General Meeting of the Planters' Association of Malaya, or they may not: but we feel that we should no longer wait for others to do what we have hitherto, in diffidence, hesitated to do ourselves, and I ask you, Sir, to be good enough to include this letter under the heading of General on the Agenda of your Annual General Meeting on Wednesday 24th inst.

"I am informed that the Lower Perak Planters' Association are prepared to support the suggestion at that meeting.

"I am, etc.,

"(Sd.) T. H. B. PHILLIPS,
"*Secretary*,
"*Batang Padang, D.P.A.*

"H. C. E. ZACHARIAS, ESQ.,
"SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

18—TODDY.

Mr. KENNEDY points out that the year was getting on and they still had no definite reply to the suggestion made by them early in the year. His own district encouraged the lines he had taken and the result had been most satisfactory, but he thinks that the Government should be pressed for a definite reply making the adoption of this policy universal.

Mr. HARVEY understands that Government is considering the prevention of palms over seven years of age being tapped for toddy.

The SECRETARY is instructed to write to Government on the lines suggested by Mr. Kennedy.

19.—RULES.

Mr. McCULLOCH proposes that the question of the appointment of a Vice-Chairman be put on the agenda of the next meeting in accordance with the suggestion made by Mr. Harvey in his opening remarks.

Mr. MILNE seconds the proposal which is agreed to.

20.—PORT SWETTENHAM.

Mr. BAILEY enquires whether the Quarantine Station at Port Swettenham was still being periodically visited.

Mr. MOOIJAART understands that a roster was still in existence but could give no particulars of the frequency of visits.

Col. FOX suggests that the Secretary be instructed to write to the Under Secretary on the subject.

21.—GENERAL.

The SECRETARY informs the meeting that invitations had been received to hold the next General Meeting in Negri Sembilan and the October meeting in Taiping.

Mr. MILNE proposes a vote of thanks to the old Standing Committee for the painstaking work done by them during 1917-18.

Mr. JEAVONS seconds the proposal which is carried unanimously.

With a vote of thanks to the Chair, the meeting terminates at 3.30 p.m.

H. C. E. ZACHARIAS,
Secretary.

Abstract of Meteorological Readings in the various Districts of Malaya for the month of November, 1917.

District.	Mean Barometrical Pressure at 32° Fah.	Maximum in Sun.	Temperature.				Hygrometer.				Prevailing Direction of Winds.	Total Rainfall.	Greatest Rainfall during 24 hours.
			Mean Dry Bulb.	Maximum.	Minimum.	Range.	Mean Wet Bulb.	Vapour Tension.	Dew Point.	Humidity.			
Kelantan, Kota Bahru	...	140.0	79.1	87.6	72.6	15.0	75.4	.804	72.8	80.0	...	18.20	4.85
Pahang, Kuala Lipis	...	...	79.6	87.5	72.3	15.2	74.9	...	...	...	...	14.70	1.50
Johore, Johore Bahru	...	...	...	88.42	76.10	...	...	...	...	...	...	7.03	2.82
Singapore, Kandang Kerbau ...	29.779	164.0	81.33	88.4	73.8	14.6	77.1	.862	...	79.0	...	7.12	2.55
Malacca, Durian Daun ...	29.841	164.0	80.0	90.0	71.0	15.1	77.0	.922	...	87.0	N.E.	7.38	2.16
Negri Sembilan, Seremban ...	...	149.3	78.7	86.3	70.8	15.5	76.2	.860	74.3	86.8	N.W.	11.21	3.51
,, Kuala Pilah ...	...	144.3	79.5	87.9	69.6	18.3	76.7	.874	74.9	85.8	...	3.67	.76
,, Port Dickson...	...	119.0	80.8	86.5	74.0	12.5	77.0	.853	74.4	81.5	...	5.87	1.25
Selangor, Kuala Lumpur ...	29.766	144.2	80.8	87.9	72.4	15.5	75.9	.819	73.1	78.0	N.E.	7.07	2.53
,, Klang	...	...	79.5	84.0	72.7	11.3	75.6	...	...	...	...	5.78	1.25
,, Kuala Selangor ...	...	...	...	87.7	74.1	13.6	...	...	...	...	...	16.87	3.58
,, Rawang	...	...	...	92.2	...	...	...	...	...	...	...	7.86	3.30
Perak, Telok Anson	...	...	79.94	89.0	72.0	17.0	76.27	.857	...	85.0	...	13.42	2.36
,, Ipoh	...	...	80.19	91.0	70.0	21.0	75.89	.839	73.46	82.0	...	8.85	1.37
,, Taiping	...	110.0	79.46	91.0	70.0	21.0	76.03	.854	...	87.0	...	14.00	2.00
,, The Cottage	...	...	...	...	...	...	...	...	...	...	...	29.01	4.64
,, Parit Buntar	...	...	81.21	91.0	72.0	19.0	76.62	.856	...	80.0	...	11.41	3.62
Penang, Georgetown	29.760	142.5	81.3	86.6	71.8	...	77.8	.962	75.8	88.4	E.	14.56	7.16
Kedah, Alor Star	...	...	...	...	...	...	...	...	...	...	...	4.92	1.20
Perlis, Kangar	...	...	...	86.10	72.27	13.83	...	...	...	...	...	6.99	1.48